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THE AMERICAN RUBBER EXHIBITION.

MANY times has the project for an American rubber exhibition been mooted. A score of times has it been suggested, but never carried beyond the first preliminaries. That is as it should be, for certainly up to the present the time was not ripe, nor was there adequate exhibition experience behind the thought. With the projected 1912 exhibition, however, the case would seem to be vastly different. At no time in the past has there been such a general interest in rubber. Nor has there ever been so wonderful and spectacular a trade development. The tropical world has been scoured to secure varieties hitherto unknown of wild rubber. Not only that, but science has gone out into the jungle and taught the native to do his work better, and give a cleaner, more valuable product. Law has penetrated to fever-ridden fastnesses and insisted upon sanitation and incidentally conservation of rubber-producing species. New appliances for gathering, for coagulation, have been produced by the hundred.

In the great factories of the world, in foundry, machine shop and laboratory, new machines and appliances have appeared by the thousand. American, German, English, French, Belgian and Russian inventors have been busy. Scientists in Government service or privately employed have spent years in rubber research, and are eager to put their views before the world.

The time is ripe. A gathering such as no other industry in the world could call out is perfectly feasible. A rubber exhibition, historical, broadly informing, complete, held in the United States would not only be of the greatest value to the people, but could be made to give an added and a permanent impetus to the already great industry that we have builded.

ARE THESE TRUSTS SO BAD?

IT is reported by the press that Attorney General Wickersham has compiled a list of 100 "bad trusts," and this list, as given conjecturally by one of the dailies, includes the United States Rubber Co. and the Intercontinental Rubber Co.

Just why the rubber trusts should be listed as "bad" it is hard to imagine. They certainly do not monopolize any branch of the rubber trade nor apparently do they attempt to do so. As a rule instead of stifling competition they have encouraged it—in rubber shoes, for example, by putting prices where it was possible for the new man to make a good profit.

As a result of the amalgamation or trust impulse that began to show itself about 20 years ago there have been consolidated about 30 companies. During that period 25 have started up as a direct result of such consolidation, and as many more because of the natural expansion of the rubber business. In the meantime the rubber business has grown from \$100,000,000 to over \$200,000,000 and the trusts have done not over 40 per cent. of it. Certainly the rubber trade has no cause for complaint.

In the popular mind the Intercontinental Rubber Co. would probably be classed as a "trust" as it is a merger of several other companies. It was formed in December, 1906, and its chief operations have had to do with the extraction of rubber from the guayule plant in Mexico. Since the beginning of 1907 over 55,000,000 pounds of guayule rubber, with a value of nearly \$25,000,000, have been exported from that country. Fully 45 per cent. of this large output can be credited to the Intercontinental Rubber Co. During the past four years, therefore, it has added some 25-

000,000 pounds of rubber to the world's supply; and that without harm or menace to anybody. Nobody pressed to the wall, no competitor crushed, either large or small; in fact nothing crushed but a hitherto worthless weed, and over \$10,000,000 extracted from it to add to the general wealth of mankind. Not a particularly flagrant record.

Incidentally it might be added that during these past three or four years the company has enriched its stockholders to the extent of over a million and a half of dollars.

PARA RUBBER IN COVENTRY.

ACCORDING to accepted theory, Pará rubber, being the Caoutchouc unit of value, sets the price for all other sorts. If Pará be high the prices of all of the lower sorts go up, if low they go down. In the past this has been uniformly true, the exceptions being some kinds such as pinky Madagascar, used for certain goods where Pará does not give as good a result.

Within the last four months there has, however, been the curious spectacle of Pará going down and the less valuable kinds either remaining as they were or showing a slight rise. In some cases these poorer sorts seem to be selling at a price that their value in comparison with Pará does not justify. For example, in 1908 the difference in price between Fine Pará and Benguelas was 52 cents; today it is only 43 cents. Or to cite a still more striking case: in 1908 the difference between Fine Pará and Caucho Ball was 35 cents; today it is 14 cents.

There is but one possible explanation. The rubber manufacturers of the world, having been once forced to pay \$3 for Pará rubber and being again threatened by high prices through corners, valorization, etc., are using other rubbers in preference even at a slightly greater cost, proving that, were the Amazonian output greatly restricted, or even shut off, the rubber factories could still run.

200 POUNDS OF SYNTHETIC RUBBER DAILY.

A VERY good friend of ours writes a somewhat caustic letter criticising the position that THE INDIA RUBBER WORLD has taken that synthetic rubber is an accomplished fact. His own belief seems to be that for many years to come synthetic rubber will not be made even in 50 pound lots, and that within the present generation it will not be used commercially even on a very small scale.

Our friend is certainly entitled to his own opinion and we wish it were as valuable as he seems to believe it to be. The facts, however, are really against him. A prominent European manufacturer—one in whose knowledge and integrity we have every confidence—who is thoroughly familiar with synthetic rubber as it is now produced, recently told us of a European firm that is actually making something like 200 pounds a day and selling it to a well-known rubber manufacturing concern for use in mechanical rubber goods. The rubber is sold at 62 cents a pound and usually gives satisfaction. It did happen, however, that certain lots for some reason or other did not vulcanize, although such failures were only occasional.

The product is described as being almost pure white in color, quite odoriferous, and exhibiting a tendency to oxidize in the course of two or three months.

The fact that such a production is going on need not alarm either rubber manufacturers or rubber planters. It will be a long time before a very large product is reached no matter how successful the producers may be. It is, however, exceedingly interesting, and will eventually, in all probability, prove of great value to the whole trade.

RUBBER IS GROWING POPULAR.

THAT there is a very widespread interest in rubber, and that it is increasing, no one at all alive to the signs of the times can fail to appreciate. The daily newspapers print far more than they did a year ago concerning rubber, and if they call it gutta percha, melt it, or get terms mixed, it in no way obscures the fact that they are trying to give their readers what they want. Short story writers in the Sunday papers and in the monthly periodicals use the rubber hunter, the plantation boomer and the factory manager as heroes for their thrilling tales. The fact that the writers do not know rubber either in the jungle or in the mill only adds to the unconscious humor of their efforts. Several novels center about rubber camps. In one the hero carries off \$1,000,000 worth of Fine Pará while cannibals are holding a feast in a neighboring thicket. A powerful man was that hero—but, then, they usually are.

Perhaps the most interesting phase of the general wish to know more about gum elastic is shown by pedagogues. A great majority of the schools in the United States and doubtless the world over are on the hunt for rubber information. They besiege editors, manufacturers, stores,

for photographs, samples and knowledge, and it is well that it is so, for there lies the possibility that the next generation may understand the rudiments of rubber as well as they do of steel, paper or any of the important factors of modern industry.

A BRITISH CRITICISM OF PIECE WORK.

THE "India Rubber Journal" prints a long letter from an official in the "Amalgamated Society of India Rubber Works" of Manchester, England, criticising the piece work system in vogue in rubber factories in the United States. It is in fact, an attempt to answer an article published in THE INDIA RUBBER WORLD, August 1, 1911, entitled, "Piece Work and Bonus Payment in Rubber Mills."

One point made is that the whole American idea seems to be to "hustle," which vexes the writer's soul. He says: "We, as workers, claim the right of collectively saying at what price we are prepared to sell our only commodity, 'labor power.'" That is perfectly correct. No fair man denies it. Piece work is all based upon labor power. One man possesses more than another however, and therefore has more to sell. He has the right to sell it all, even if another does not possess quite as much. The man with the capacity to do two days' work in one will never be willing to come down to the wage of the man who can barely do his day's work. Nor should his associates ask it of him. Man, laborer or capitalist, is or should be a free agent. He should be able to sell his labor for what it is worth unhampered by anyone. Between the grind of corporations and the tyranny of labor organizations, the laborer certainly has a hard time. His only hope is to "hustle" and get a bit ahead, and thus, in a measure, be free from both.

CAN RETAILERS SUCCEED AS MANUFACTURERS.

AT the convention of the Ohio Retail Shoe Dealers' Association, recently held in Cincinnati, where considerable time was devoted to the discussion of the prevailing level of footwear prices,—which in the opinion of the members of that convention are unduly high,—a committee was appointed with instructions to formulate plans whereby the association could get a "square deal" from the manufacturers. The chairman of this committee, who is also vice president of the association, gave out the statement,—as reported in another column by our Cincinnati correspondent,—that "the association will either finance a company

for the manufacture of rubber footwear or have the entire association combine and make its purchases in immense quantities to secure a reduction in prices and then distribute to the retail dealers."

It is hardly likely that the Ohio retailers will permit their disapprobation of the present price situation to go so far as to make any very substantial subscription towards the building and equipping of a rubber footwear plant. Resolutions of displeasure are one thing and hard cash advances for a manufacturing venture quite another. The sad experience in the past of many rubber footwear enterprises that started with rosy prospects and considerable cash in hand shows that a certain amount of paid-in capital is not all that is needed to insure the successful manufacture of rubber boots and shoes.

The alternative plan suggested by the committee under which the retailers of that state should pool their purchases appears rather more feasible, as this requires simply organized coöperation and mutual confidence and not any considerable financial advance. If it should be put into practice and adopted by other local retailing associations, the jobbers and sales departments of the manufacturing concerns would have a new and interesting situation to deal with.

PATIENT STOCKHOLDERS GET THEIR REWARD.

PATIENCE stands so high among the virtues that there is a universal feeling that it should be entitled to its due reward. This feeling finds expression in the accepted adage that "all things come round to him who will but wait."

The directors of the United States Rubber Co. at their meeting on October 5 gave substantial proof—if any were needed—of the trustworthiness of this ancient proverb, when they declared a dividend on the common stock of that company. The last dividend on this stock was paid in April, 1900, eleven and a half years ago. Forty-six times since then have the quarterly periods rolled around, when dividends might have been paid, but were not; yet the holder of this common stock has kept a stout heart and hoped on with a hope so buoyant that during this barren period the stock has ranged much of the time over \$30 a share, has remained for many consecutive months at over \$40, has made periodical and protracted excursions across the \$50 line and once came within half a point of \$60. At last these patient waiters have come into their reward, at least to the extent of the 1 per cent., just paid.

Since its formation in 1892 the United States Rubber Co. has paid in dividends on its various shares close to \$34,000,000. It has paid 122 per cent. on its preferred stock. It began in 1893 with 4 per cent., raised this to 9½ per cent. in 1894, and has paid 8 per cent. every year since except in 1897, when it paid 6 per cent.; in 1901, when it dropped to 1 per cent.; the two following years, when it passed altogether; 1904, when it resumed by paying 4½ per cent., and 1905, when it paid 9 per cent. Its average for the past 18 years is 7 per cent.

It began paying on the second preferred stock in October, 1905, and has maintained a 6 per cent. rate ever since. But its common stock has had a leaner career. On this stock the company started off with the payment of 2½ per cent. in 1895, followed by 2 per cent. in 1897, which was repeated in 1899 and 1900, from which time there was a hiatus until the payment just made. This stock has received in 18 years a total of 9½ per cent., or an average of ½ per cent. a year.

The preferred stock, with an average dividend of 7 per cent., is certainly not selling inordinately high at its present figure of about 108. The second preferred, selling close to 75, which puts it on an 8 per cent. basis, holds about the proper logical relation to the first preferred, but the common selling at over 40 on a payment of 9½ per cent. in 18 years shows that its holders are following that admirable motto, "Look forward, not back," as evidently their eyes are on the future rather than on the past.

A BIG SNAKE STORY EXPLAINED.

ALLOT LANGE is not only a writer and lecturer on rubber, but a narrator of thrilling adventure. He had an account in the New York Sunday "Herald" of October 8, of his encounter with a boa constrictor in the Amazon country. "The snake," he writes, "was coiled up, forming an enormous mass of round, scaly monstrosity, large enough to crush us all to death at once. We stopped at a distance of about fifteen feet and looked at each other and, strange to say, I felt as if I was spellbound, unable to move any further or even to think or act." However, he managed to bring his automatic Luger pistol into play, and his six Indian guides blazed away with their .44 Winchesters, and the reptile was slowly and painfully devitalized. Then he was smoothed out and duly measured. "I proceeded to take my measurements and used the span between my thumb and my little finger as a unit, knowing that this was exactly eight

inches. Beginning at the mouth of the snake I continued to the end of the tail, and found a total length of fifty-eight feet four inches." In order to silence forever any shallow carper he verified his calculations. "I took this measure from the tail to the nose over again, so as to eliminate any errors, whereupon I asked the men who were with me to take the measurements in their manner, only confirming the above mentioned figures."

W. T. Hornaday, director of the New York Zoological Museum, commenting on this reptile remarks: "Thus far I have not been able to obtain the definite record for either anaconda or python, measured by careful and competent hands, that exceeded 25 feet," but he thinks one possibly might attain to 30 feet.

But Mr. Lange's 58-feet-4-inch boa is easily accounted for. He was in the heart of the rubber country; the day was hot and the snake was dry. Coming upon a fine specimen of *Hevea Brasiliensis* with the rich, fresh milk pouring out from a recent tapping he imbibed freely and joyously. The heat of the tropical sun and the sulphur of his natural disposition combined to vulcanize the latex as it entered his system. The result—an elasticity like that of the rubber band in a boy's bean-shooter! Mr. Lange and his six Indians easily stretched him out to 58 feet 4 inches. If there had been twelve Indians they could undoubtedly have stretched him out to 116 feet 8 inches.

DR. IRA REMSEN, president of Johns-Hopkins University, has an exceedingly interesting article in the "Scientific American" of September 16, 1911, on synthetic rubber—that is, it is interesting the moment he begins to touch on the chemical side of it. His "few words concerning rubber," however, show a lack of broad information. He gives South and Central America the credit for most of the crude rubber produced, mentioning to be sure, plantations in the Middle East, but ignores the great African production. His description of coagulation, as long as he is referring to the South American product, is also inaccurate, the reader gathering the impression that the rubber is heated, which to the popular thought will mean boiled, when he should have made it definite that it is smoked.

These are minor points, however, which make no particular difference either way, while the fact that a scientist as distinguished as he is acknowledges that synthetic rubber is here, is however, of vital interest.

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

A SOMEWHAT startling incident occurred recently at a Birmingham rubber works, a series of explosions taking place when some Cametá rubber was being washed. Inspection showed that some cartridges had been concealed in the rubber by the wily native, doubtless with the intention of

CAMETA RUBBER.

increasing the weight and not with any sinister intent on life or property. It is commonly supposed that the weighting of raw rubber by extraneous bodies such as metal and stone is now entirely a thing of the past, but I may say that with Cametá rubber such a thing is of quite common occurrence today. Stones are commonly found in it, iron tools being also among recent finds. As a rule, these bodies are well concealed and not to be detected until the rubber is cut open in the purchaser's factory. Apart from this objectionable peculiarity there is nothing to be said against Cametá rubber except perhaps with regard to its somewhat variable loss in washing. The figure may be 40 per cent. or it may rise to 50 per cent., but whatever the actual loss may be, the washed out rubber is always of one uniform quality, a fact which is appreciated in the factory. The rubber has thus come to be looked upon as a very reliable quality and is especially in favor for spreading purposes in some works, though it may be said that it is of general applicability for high-class purposes, owing to its low proportion of resin.

ONE of the most important and discussed topics of the day is the reduction in the prices of motor and cycle tires by the Michelin Company. This reduction, which was announced in September, amounts to about 15 per cent. on previous prices. This reduction is by no means generally agreed with by English makers, who say that it is premature and unwarranted by existing market conditions. Naturally English manufacturers have had to follow suit, among those who have announced a similar reduction being the Dunlop Company, Limited, and the Avon Company, Limited. As a set-off it is admitted that the price of the canvas shows a reduction of from 7½ to 10 per cent. on last year's prices.

TIRE PRICES.

IN the August issue of THE INDIA RUBBER WORLD a description with figures is given of Prof. Alfred Schwartz' hysteresis rubber testing machine, which I understand is coming into favor in rubber works, and in some cases at any rate has ousted other types of dynamometer previously used. It need hardly be said that the physical testing of rubber, as opposed to the purely chemical, has achieved great prominence in recent years, the main feature perhaps about its progress being the variety of dynamometers to be met with, each of which is claimed by the makers thereof to be the ideal machine for the purpose. The subject of course is a somewhat difficult one for the ordinary works manager to tackle, and one only comes across dynamometers in works where there is a laboratory under scientific control. Perhaps the greatest drawback to the Schwartz machine is the inclusion and association of the word hysteresis; plain rubber men having been known to say that anything of that sort would be too scientific for them. This has been said by authorities in works where the ordinary cloth testing machine is in regular use. I noticed at the late Rubber Exhibition that Mons. A. D. Cillard had had the brochure on the Dynamometer system of Paul Breuil translated into English. This brochure is a somewhat lengthy one, giving close details of the construction of the machine and a series of tests made on rubber textile and plastic materials, showing its capabilities and usefulness. At

DYNAMO- METERS.

this exhibition some well-known German machines were also on view, while tests were being carried out at the working stand of the Continental Rubber Co., Limited (Guayule) on a machine which I understood Mr. H. van der Linde to say was one of their own design. For the tensile tests of duck sheeting, etc., some of the rubber works in the Manchester district regularly use the cloth-testing machine made by Nesbitt of Market street, Manchester, the cost of which is about £12. This is the machine used in the testing laboratory of the Manchester Chamber of Commerce. The rubber works use the machine also for testing rubber, but since the appearance of Schwartz's machine there is a noticeable disposition to use the latter for rubber purposes.

A YEAR or so ago the Peruvian Amazon Company was strongly attacked in "Truth" in a series of articles entitled "The Devil's Paradise." The complaint was that gross cruelties were perpetrated by the company's agents in compelling the Indians to collect the rubber. The articles were referred to cautiously in THE INDIA RUBBER WORLD at the time, probably because the Peruvian Amazon directors were talking of libel action. Some people in England indeed who enlarged in righteous indignation on the "Truth" indictment did tender apologies which were duly advertised by the directors. Mr. Labouchere, however, did not withdraw anything and was not called upon to defend a libel action. The board was a mixed one of English and Spanish speaking gentlemen, and of course every one was quite ready to believe that the London directors had no personal knowledge of the cruelties perpetrated in the carrying on of the rubber business in Peru. When the indictment appeared they promptly caused all enquiries to be made, and gave every assistance to certain government officials who were deputed to look into the matter. The latest news of the company is that at a meeting of shareholders, held in London in September, a resolution for voluntary liquidation was brought forward by the directors and adopted by the meeting. This does not mean that the company comes altogether to an end, as in all probability it will be reconstructed.

PERUVIAN AMAZON CO.

ON a former occasion when dealing at some length with the use of rubber at metal mines I referred to the Buss vanning table which has a surface of vulcanized rubber which I have frequently found to be in poor condition. As a rule the rubber used for this purpose is more heavily compounded than in the belts used for the Frue vanners. I recently visited a lead mine in rather a remote spot in the north of England, and found the rubber on the Buss vanners very far advanced towards decay. I found also that the foreman had been supplied by the management with a patching outfit with which he had been struggling with very partial success. It ought to be more generally understood that compound vulcanized rubber is not everlasting and should be renewed at intervals. This is where the Wilfley table with its linoleum surface seems to have an advantage over the Buss table.

A METAL MINE PROBLEM.

THIS firm is one of the most recent additions to the list of reclaimers in England, if indeed it is not the most recent, having been formed just about a year ago. It is located in convenient premises at the Phoenix Mills, Daw Bank, Stockport, about five miles from Manchester. The directors include G. H. Cartland, of Enwick Grange, Worcester; W. H. Veno and N. Barnes. The two latter are well-known Lancashire business men, while Mr. Cartland, though he has many business interests is perhaps most widely known in his capacity as president of the

THE MERSEY RECLAIMING COMPANY, LIMITED.

Warwick County Cricket Club, a post he has held I believe for about 25 years. This year he has had the satisfaction of seeing his club win the county championship for the first time. But this, by the way. The reclaiming process used by the Mersey is I understand different from that used previously by established and competitive firms. The work's manager is Mr. Gray, who has recently had considerable experience in rubber reclaiming in the United States. Before going to America he occupied positions at the Dunlop Co., Limited, and F. Reddaway & Co., Limited. He is, I may add, a brother of Mr. J. G. Gray, the present works manager of the Gorton Rubber Co., Limited.

At eleven o'clock on Saturday night, September 16, some naphtha drums which had been stored near the base of one of the large chimneys at the works of Chas. Macintosh & Co., Manchester, exploded, giving rise to a fire which caused the town fire brigade some trouble to subdue, owing to the extreme inflammability of the material which fed the flames. The works were never in danger, the main risk being limited to the chimney, and this was fortunately saved from disaster by the firemen's efforts. What caused the drums to explode remains much of a mystery, but the extremely hot weather which has been responsible for so many fires of one sort or another this year may have had something to do with it.

A serious motor car accident occurred near Hawarden, North Wales, on October 1, when a car, containing H. L. Rothband and members of his family, collided with another containing two gentlemen, one of whom was killed outright and the other very seriously injured. The Rothband family, though bruised and shaken escaped serious injury. Mr. Rothband is well known in the rubber trade as partner in the proofing works of J. Mandelberg & Co., Limited, of Pendleton, Manchester.

The Manchester proofing trade has recently lost a well-known figure in Lazarus Mistooski. For about forty years he had been connected with the trade, and about twenty years back had a proofing works at Heywood, a town in the Manchester district. This was subsequently given up and a few years afterwards he started the firm of L. Mistooski & Co., Limited, at Manchester.

"A PALE, STICKY LUMP OF HORROR."

A reporter on the London *Financier*, who evidently has a very susceptible sense of smell, contributes the following paragraph to his paper in reference to an artificial rubber made largely of coal tar, and further referring to a lump of synthetic rubber that he saw, or more properly smelt, when attending the rubber exposition last summer:

"In the latest project for making artificial rubber coal tar is said to be the chief constituent, and the process is described as not only successful, but cheap. I don't mind what these gallant inventors use to produce so-called rubber, provided it is something different from the stuff composing the 'synthetic' rubber made at the late exhibition. Whenever I think of that pale, sticky lump of horror which I was prevailed upon to smell shortly after its emergence from the mysterious 'autoclave' I—well, feel I shall never want a dinner again! Limburger—ofttimes cited as possessing the limit of power on the olfactory nerves—is comparatively innocuous, so I am sure coal tar—hot or cold—would prove a veritable attar of roses. Good luck, then, to the humanitarian inventor!"

MALLETS OF RUBBER.

The doctors are now using rubber mallets for certain purposes. The matron in the Bayonne police headquarters suffered severely from rheumatism, and recently underwent a peculiar operation performed by several local surgeons. The flesh and bones about her knees had grown together. The doctors broke her knee caps, using for this purpose a small rubber mallet. Her bones were then re-set in their proper position.

THE EXHIBITION TROPHY AWARDS.

WITH reference to the award of both the "India Rubber Journal" shield and the "Grenier's Rubber News" silver trophy to the Sungei Kapar Rubber Company, Limited, Selangor, Federated Malay States, it is of interest to note that this company was registered in July, 1906, and has a paid-up capital equaling \$500,000, the British offices being at Edinburgh. It has 2,031 acres under cultivation, planted at various dates from 1902 to 1908, and had in 1910 an output of 225,400 lbs. dry rubber, its crop for 1911 being estimated at 300,000 lbs.

In connection with the details quoted by the INDIA RUBBER WORLD in its October, 1911, issue (p. 11), the detailed results of the two awards indicate the high character of the company's product.

"INDIA RUBBER JOURNAL" COMPETITION.

	Maximum possible.	Points awarded.
Color test.....	10	10
Chemical test.....	20	16.5
Vulcanizing test.....	70	70
Total	100	96.5

"GRENIER'S RUBBER NEWS" COMPETITION.

	Maximum possible.	Points awarded.
Color test.....	10	10
Chemical test.....	20	18.5
Vulcanizing test.....	70	70
Total	100	98.5

By analyzing the detailed returns of the 66 awards in the "India Rubber Journal" competition, the importance of the vulcanizing test as an element of comparison is clearly shown, 70 points out of a possible hundred having been allotted to that test. The average award for the 66 items was about 57 points, or approximately 20 per cent. under the maximum, there being 33 awards of between 60 and 65 points.

In the color test the average award was only about 5 points out of a possible 10, it being thus indicated that relative inferiority of color is compatible with a comparatively high grade of vulcanizing property. Thus in one case an award for color of 1 point out of 10 was accompanied by one of 65 out of 70 for vulcanization. The awards for color range through the whole gamut from 0 to 10, while the chemical test is not only more uniform but averages about 18 out of a possible 20.

The general average result is shown as follows for the 66 awards in the "India Rubber Journal's" competition.

	Maximum possible.	Average points of 66 entries.
Color test.....	10	5
Chemical test.....	20	18
Vulcanizing test.....	70	57
Total points.....	100	80

Broadly speaking, almost the same result is shown by the returns of the 45 awards in the competition of "Grenier's Rubber News";:

	Maximum possible.	Average points of 45 entries.
Color test.....	10	6
Chemical test.....	20	18
Vulcanizing test.....	70	50
Total points.....	100	74

The total number of items in the two competitions was 111, contributed by 40 separate competitors, of whom 23 were in both contests.

Some Rubber Interests in Europe.

MEYER COHN, HANOVER.

AN important firm in northern Germany is that of Meyer Cohn, Hanover, operating a combination waste rubber, rubber chemical and reclaiming plant.

This house was originally an old metal concern, its present large rubber interests having been developed by Samuel



SAMUEL BARON.

Baron, well known in rubber circles in both America and England.

Meyer Cohn now employs several hundred hands and does an extensive business in his various rubber lines.

GOLDEN JUBILEE OF HANOVER CONCERN.

ON April 19, 1912 the Hannoversche Gummi-Kamm Company, A.-G., Hanover, Germany, will celebrate its fiftieth anniversary. The company now has 3,000 employees on its payroll. It is represented in New York City by Julius Lehman.

NEW HOME OFFICE BUILDING FOR CONTINENTAL COMPANY.

THE Continental Caoutchouc-und Guttapercha Company, Hanover, Germany, commenced the construction of its new office building on October 1. The new structure will be erected on the site of the present office quarters and is not expected to be ready for occupancy for 18 months.

VEREINIGTE GUMMIWAAREN-FABRIKEN HARBURG-WIEN.

In the report of the Vereinigte Gummiwaaren-Fabriken Harburg-Wien for the 39th business year, from July 1, 1910, to June 30, 1911, reference is made to the depression of prices for manufactured rubber products, caused by the great fluctuations in crude rubber. Several competing factories would seem in the first half of the business year, to have made reductions, to a greater extent than the position of the raw material justified.

The works both at Harburg and Wimpasing were actively employed during the business year, the output being within about 15% of maximum capacity. These conditions are attributed to the quality of the product, as illustrated by the high awards obtained at the Brussels Exposition and at the London Rubber Exposition; the last named being the only one granted for the rubber manufactures of all countries.

With a view to promoting its interests, the "Kautschukgesell-

schaft Schön & Co." of Harburg, controlled by the Vereinigte Gummiwaaren-Fabriken has secured important jelutong concessions in the Dutch Indies.

During the first months of the new business year a satisfactory increase of trade has been recorded.

NEW AMERICAN RUBBER RECLAIMING PLANT IN RUSSIA.

It is rumored that the U. S. Rubber Reclaiming Works contemplate erecting a reclaiming plant in St. Petersburg.

GREAT BRITAIN.

The British West African Association, of which the Right Honorable Earl Cowley is president, with headquarters in London and branches throughout west and equatorial Africa, has paid the editor of THE INDIA RUBBER WORLD the distinguished compliment of electing him an honorary member of the association.

BRITISH CONCERN SECURES LARGE GOVERNMENT ORDERS.

THE North British Rubber Company, Limited, Castle Mills, Edinburgh, which recently secured the contract for rubber shoes for the British navy, has now obtained a very large order from the government for Ebonite.

DEATH OF SIR CHARLES LAWES-WITTEWRONGE.

THE death is announced of Sir Charles Lawes-Wittevronge, proprietor of the Millwall Rubber Company, Harpenden, England. The cremation was attended by representatives of the Society of Chemical Industry, and of other associations of which the deceased had been a member.

CRUDE RUBBER WASHING CO., LIMITED, LONDON.

THE report of the first year's working expresses regret at the losses incurred, mainly through the extraordinary drop in the value of rubber; a corresponding depreciation having taken place in the value of stocks bought for the purposes of the company's business. Hopes are expressed that a part of the loss will be recouped by subsequent operations, when the company's products would have been introduced to the different markets of the world, and when the prejudice had been overcome that the quality of the rubber was adversely affected by its treatment.

NEW FRENCH SYNTHETIC RUBBER COMPANY.

According to reports from Paris a company has recently been formed in that city, with a capital equaling \$500,000, for the production of synthetic rubber by the Reynaud process. This process, it is understood, is based on the employment of turpentine, the relatively high price of which has so far proved a difficulty, but the hope is expressed that this obstacle will soon be overcome.

The process in question consists broadly in subjecting turpentine or similar oil to the fractionated action of sulphuric acid, the material thus obtained being then treated by boiling hydrochloric acid. In order to obtain a complete and perfectly uniform transformation of the entire mass of turpentine oil, the latter is first of all divided by immersing therein an absorbent material, such as unvulcanized rubber.

Under the fractionated and progressive action of the sulphuric acid the turpentine oil is by the Reynaud process transformed into a pasty and slightly sticky, elastic material. This material is then thoroughly washed in water, so as to eliminate the excess of sulphuric acid. It can at this stage be industrially utilized, but is preferably treated with hydrochloric acid, being immersed for some hours in a boiling bath of that acid in concentrated form. Finally the acid is caused to boil for some hours after having been diluted with water. In this manner a firm, sinewy product is obtained, which, after washing, it is claimed, presents all the physical and chemical properties of natural rubber.

Some Notes on Rubber Planting.

STATISTICS OF MALAYAN RUBBER PRODUCTION.

ACCORDING to the official report for the year 1910, of the Director of Agriculture, Federated Malay States, the aggregate rubber yield of British Malaya for last year was more than double that of the preceding annual period. The totals shown for the whole of British Malaya are as follows:

	1909.	1910.	In-crease.
Number of plantations.....	534	632	18%
Area in acres.....	855,992	1,014,414	
Planted at end of year.....	292,035	362,853	26%
Acreage in rubber alone.....	253,067	332,958	
Acreage in rubber with other cultivation	38,968	29,895	
Planted during year (acres).....	50,897	70,818	39%
Rubber crop (pounds).....	6,741,509	14,368,863	113%

The separate parts of British Malaya were represented in the following proportions:

	Planted Area 1910.	Crop 1910.
Federated Malay States	68%	88 %
Straits Settlements	16%	7 %
Johore	12%	4½%
Kelantan and Kedah, etc.....	4%	½%
	100%	100%

RUBBER CULTURE IN FORMOSA.

By an English Consular report it would seem that last year some 3,500 acres of land in Kagi Prefecture, Formosa, were leased to a Japanese syndicate. *Castilloa*, *Ceara*, *Hevea* and *Ficus Elastica* are to be there planted. It is anticipated that the undertaking will be completed in six years. Meanwhile large numbers of the above-named trees are being raised by the Government horticultural nurseries at a 25-acre plantation near Kagi, for distribution among planters.

FEW FAILURES IN STRAITS SETTLEMENTS.

WITH the collapse of the rubber boom of last year, it would not have been remarkable if failures in the Straits Settlements had increased in number. Returns from Singapore, however, show the number of receiving orders issued were as follows during recent years: 1907, 93; 1908, 100; 1909, 62; 1910, 38.

A reduction in about the same proportion has been recorded in the estimated loss to creditors.

GERMAN PLANTATION CO. INCREASES CAPITAL.

THE increased capital of \$25,000 recently decided upon by the Agu Plantation Co., is understood to have been promptly over-subscribed to the extent of 50 per cent. It is intended to use the new capital in augmenting the enterprise. The company has 86,000 *Manihot Glaziovii* trees planted, in addition to 1,400 *Ficus* and 700 *Hevea*. Those planted in 1906 have now reached the productive stage.

SUNGKAI-CHUMOR ESTATES, LIMITED.

(FEDERATED MALAY STATES), May, 1906, 2,682 acres, area planted 944 acres. Rubber crop for year ended June 30, 1911, 34,531 pounds. Net price realized equalled \$1.14 per pound. Estimated crop for year ending June 30, 1912, 80,000 pounds.

BAMBRAKELLY (CEYLON) TEA AND RUBBER CO., LIMITED.

DECEMBER, 1908, 1,528 acres, all planted. Rubber crop for six months ended September, 1911, 17,749 pounds. Same period last year, 4,625 pounds.

SAPUMALKANDE RUBBER CO., LIMITED.

(CEYLON). October, 1909, 2,227 acres, planted 810 acres. Rubber crop for 9 months ended September, 1911, 71,617 pounds. Same period last year 28,003 pounds. Of 1911 crop, 38,117 pounds sold at average equivalent of \$1.31.

LONDON ASIATIC RUBBER AND PRODUCE CO., LIMITED.

(FEDERATED MALAY STATES), October, 1907, 6,646 acres, area planted, 4,183 acres. The crop harvested on this company's estates during the nine months ended September 30, 1911, amounted to 221,785 pounds; thus showing an increase over the rate for 1910 of about 60 per cent. Of this year's yield, 124,569 pounds have been sold at an average equalling \$1.23 per pound.

MALAYALAM RUBBER AND PRODUCE CO., LIMITED.

(SOUTHERN INDIA), January, 1910, 10,370 acres, area planted, 3,153 acres. Rubber crop for nine months ended September, 1911, 16,135 pounds. Same period last year 4,380 pounds.

RIVERSIDE (SELANGOR) RUBBER CO., LIMITED.

AUGUST, 1909, 2,242 acres, area planted 1,118 acres. Rubber crop for nine months ended September, 1911, 37,319 pounds. Same period last year 7,500 pounds.

SCOTTISH MALAY RUBBER CO., LIMITED.

(FEDERATED MALAY STATES), February, 1906, 2,455 acres, all planted. Rubber crop for nine months ending September, 1911, 53,534 pounds. Same period last year, 18,211 pounds.

VALLAMBROSA RUBBER CO., LIMITED.

(FEDERATED MALAY STATES), April, 1904, 3,424 acres. Area planted, 2,800 acres. Rubber crop for six months ending September, 1911, 199,900 pounds. Same period last year 202,200 pounds.

FORWARD SALES OF PLANTATION RUBBER.

AMONG other forward sales for 1912 of plantation rubber, the following are reported:

	Pounds.	Average equalled.
Selaba Rubber Estates, Limited.....	18,119	\$1.45
Pataling Rubber Estates Syndicate (Limited)	1,676	1.66
Golden Hope Rubber Estate Limited..	12,254	1.45
Bikam Rubber Estate, Limited.....	6,382	1.46
Sapumalkande Rubber Company, Limited	8,177	1.46
London Asiatic Rubber and Produce Company, Limited	34,393	1.44

SEAPORT (SELANGOR) RUBBER ESTATE, LIMITED.

JUNE, 1910; 2,000 acres, area planted 1,000 acres. Rubber crop, year ending June 30, 1911, 17,717 pounds; average price realized equalling \$1.13.

WAMPOE TOBACCO AND RUBBER ESTATES, LIMITED.

At the formal general meeting held on October 10, in London, the directors reported that considerable progress had been made by this company. Five hundred acres have been opened up for Pará rubber; it being intended to complete the planting of this area by the end of the current year.

NEW LATEX PROCESS.

Mr. Derry, assistant to Dr. Henry N. Ridley, Director of the Botanic Gardens, Strait Settlements, has patented a process for coagulating, by conveying the latex on a cloth belt through a volume of smoke.

Stillman Shaw and Warren B. Wheeler of the North American Rubber Company, who were arrested last spring charged with using the mails illegally, were discharged September 22 by United States Commissioner Hayes. The prosecution failed to substantiate any charge that in selling stock the defendants had misrepresented the conditions of their company.

THE "SERINGUEIRAS" OR RUBBER TREES OF THE AMAZON.

A PORTUGUESE DESCRIPTION OF RUBBER GATHERING.

THE seringueiras *Heveas* produce the best known rubber. The basin of the Amazonian rivers is the country on which the different kinds of trees are scattered, unequally grouped, depending upon the nature of the ground, altitude, its dampness, etc. There are several varieties of rubber trees. We note 21 different kinds, of which five take a prominent part (Huber).

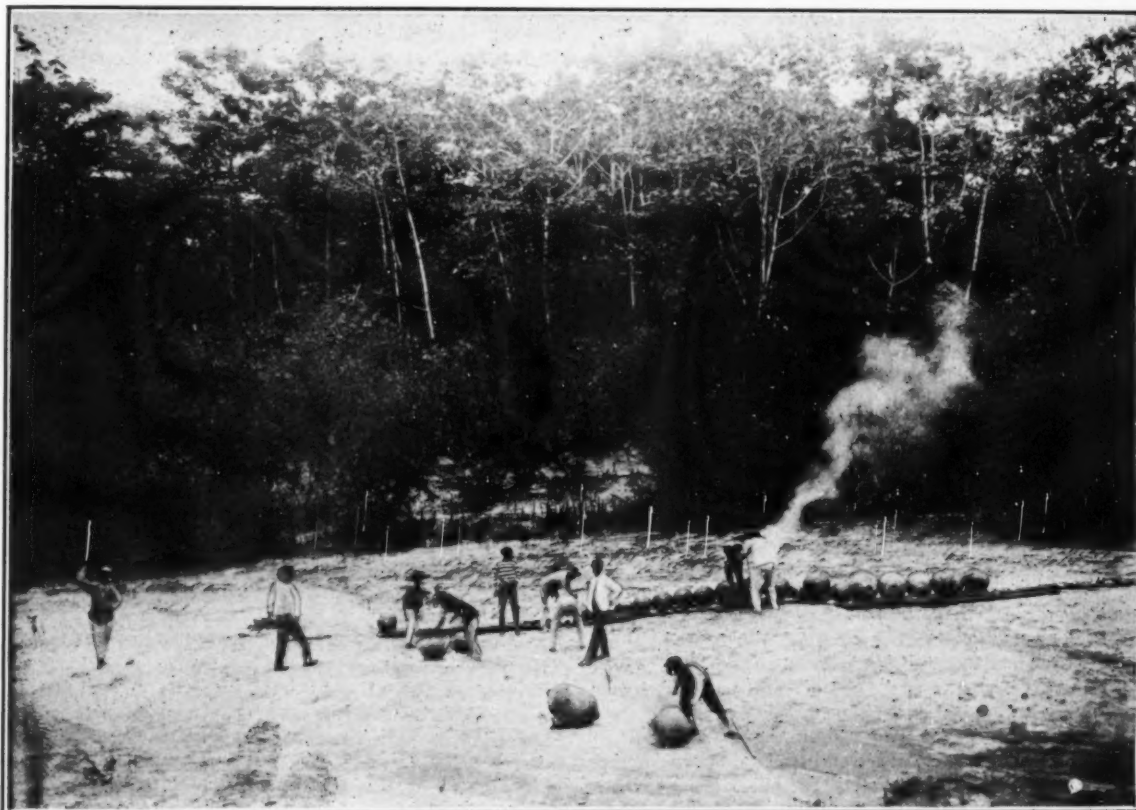
The rubber tree "rana" or "mangue" (*Hevea guyanensis* or *siphonia elastica*) will grow in a very damp ground, nearly always inundated, situated at the mouths of rivers. This tree does not give a very important product.

The rubber tree "branca, vermelha ou preta" white, red or black (*Hevea Brasiliensis*) is found in groups on the islands and at places of inundations, from the middle upward to the high parts of basins of nearly all the Amazonian tributaries. It is also found on solid ground (especially the red variety, which is the least milky) and in places filled with dampness during most of the year. This rubber tree produces the largest quantity and the best class of Amazonian rubber.

The rubber tree "puca" (*Hevea viridis*) yields latex of an inferior quality. The rubber tree "barriguda" (*Hevea spruceana*) is frequently encountered on solid and high ground, between the

The rubber trees are found in nearly all the Amazonian territory, from the sea level up to the altitude of 600 meters (about 2,000 feet) and more, but the best quality is encountered on the islands lying at the mouths of big rivers, and in the high basins of the principal Amazonian tributaries, principally the Madeira, the Purús, the Jurua, the Javary and their own ramifications.

The longevity of the rubber tree is not known exactly—it may live 100 years or more. The milk production accumulates with the age of the tree and therefore its value is increasing with age. Barring accidents or sicknesses, which are very rare, the rubber tree being less inclined to sicken than any other domestic tree, it is supposed to live the time mentioned above. Compared to a gold mine, the rubber tree is much more valuable, because every dollar of profit that is drawn from a mine represents a depreciation in its value, whereas with every year, the rubber tree will augment its production of a better quality. It is an inexhaustible mine, without limits. The rubber tree is an automatic augmentation of profits. With every year's production these profits are increased without depreciating the value of the tree. The rubber trees develop into majestic trees growing tall and straight. At the blooming time, the air of the seringal (rubber plantation) produces a very agreeable perfume attracting swarms of bees and other insects. Four months after, the seeds begin to appear in hanging clusters. During the hot season there is a discordant concert of a fantastic musketry in the seringal which is produced



Photograph by Algot Lange.

BRANDING PELLETS OF PARA RUBBER.

two rivers and in the vicinity of the interior lakes. The latex is not of a good quality, but is used in the mixture of other better varieties of rubber.

The rubber trees "itauba" or yellow (*Hevea Cuneata*), which produces a rubber of good quality, lives best on high, dry grounds.

by the cracking burrs, opening themselves and scattering seeds in all directions.

For the exploration of the rubber, the first duty consists in opening the estradas, which are opened by the matteiros, who are experts on rubber trees.

The estradas are supposed to hold about 120 to 180 trees

(*Heveas*), forming as nearly as possible a circle or a figure 8, in order that, starting from any part of the estrada, the seringueiro will always find his way back. There, the seringueiro builds himself a hut covered with "Paxiuba or Ubussu" that protects him poorly against the elements.

Besides these huts, which are located in the working estrada of the seringueiros, there is the "Centro or Barracão do Patrao" (or the house of the foreman), containing generally a shop, where commissaries, munitions and working tools are supplied, and where all the rubber of the estrada is gathered.

The working material of the seringueiro is very simple and cheap. The necessary tools are: A small machadinha, weighing



RUBBER GATHERERS' CAMP, SHOWING FURNACE FOR SMOKING.

125 grams (4.4 oz), having an edge of 0.25 mm. (0.01 inch) to which a handle is affixed, the length of which depends upon the necessities of the work; a zinc bucket of 6 to 8 litres (1.58 or 2.11 gallons) to gather the latex, 500 to 600 tijellinhas (tin cups) with a capacity of 200 cubic centimetres (12.2 cubic inches) and a basin of zinc, where the contents of the buckets are deposited before the defumacao (smoking).

The work starts early in the morning, the seringueiro armed with his machado and carrying a bag of tijellinhas (tin cups) on his shoulder, is exploring the estrada and works at each tree, as high as possible, cutting oblique incisions (taking the upward direction) through all the thickness of the bark. Below each of these incisions he immediately inserts a tijellino, introducing its edge by an inside depression into the bark, or he hangs it up with damp argyl.

The number of horizontal incisions varies in accordance with the thickness of the tree. At 10 a. m., when the dropping has nearly ceased, the seringueiro leaves the hut again with the bucket in which he pours the contents of all the tijellinhas and which he leaves at the bottom of the tree upside down on small sticks which are standing in the ground for this purpose. When returning to the "centro" the defumacao is started.

The smoker, protected from the weather by a few palm leaves, is placed near the hut. It is a straight truncated cone, generally made of iron, 50 centimetres (19.68 inches) wide. The seringueiro places it on two stones and builds a fire underneath feeding it with "coco" (the urucary or the inaja) which, on account of its rich smoke containing antiseptical qualities, coagulates the rubber. It is with a kind of cane terminating in a round and straight shovel, similar to the paddles of the canoes used on the Amazon, which lies on a pitchfork at the bottom of the fire, that the seringueiro makes the defumacao (smoking process). First he passes this cane over the smoke then dips it in a basin close by, which is full of latex, passes it again over the smoke and the first layer appears to be coagulated, then, with a cuia (cup or gourd) he throws over that another layer

and so on successively till the pelle is formed, which represents a ball weighing approximately from 6 to 8 kilos (13.2 to 17.6 pounds), or from 30 to 35 (66 to 77 pounds) at the heaviest.

The well defumated rubber is called "borracha fina" (fine rubber). The rubber by which the coagulation has been badly made, or by which the defumacao (smoking) took place a little late, when the milk was already a little coagulated, is called "borracha entrefina" (entrefine rubber).

The sernamby rubber is the naturally solidified rubber, on the ground, in the trees, in the tin cups, in the buckets, etc. It consists of threads or pellicles, mixed with more or less earth refuse or other foreign substance. Its value is estimated to be 30 per cent. less than the fine rubber.

The harvest and the smoking, in other words, the manufacture of the rubber, lasts from six to seven months a year and during the other months of the very dry season the trees are not touched. At the overflowing time the harvest is rendered impossible on account of the waters inundating the igapos. It is calculated that the average yield of each tree is 44 grams (1.55 ounce) of latex per day, but one rarely gets more than 5 kilos (11 pounds), which per man, represents yearly 450 to 500 kilos (900 to 1,100 pounds) fine rubber and 90 kilos (198 pounds) of sernamby.

After the manufacture, the rubber is taken to the hut of the foreman, and from there sent to Manaus to the aviador, who is the supplier of the provisions and of the goods to the seringaes, and who, for the most part, is the real proprietor of the seringa.

From the aviador the rubber is sold to the exporters who send it to the consuming markets of the world.

These exporters are the people who make the "beneficiamento," consisting in opening the pelles in qualifying them (rubber fine and entrefine) and in packing them up in solid pine cases to be then embarked at the Manaus Harbor on board the transatlantics, which take it to the ports of destination.—*Revista Literaria Artistica*.

THE BALATA INDUSTRY OF BRITISH GUIANA.

(By a Special Correspondent.)

AT a recent meeting of the legislature of British Guiana, a bill was passed entitled "The Balata Ordinance, 1911." In the ordinance "balata" includes rubber and any like substance.

Of late there has been a good deal of dispute among licensees as to the boundaries of their grants and the ownership of certain quantities of balata, etc. No regulation existing to govern such disputes, recourse has often had to be made to the law courts, with consequent delay and great expense to the litigants. The interests of various licensees being of a common nature, the Law Officers of the Crown, on representations made by the British Guiana Balata Association, drafted the bill which has become law. It is very simple in its nature. It sets out that in all cases of dispute as to the boundaries of any grant or grants, the Commissioner of Lands and Mines shall, on request, cause a survey to be made, and such survey and boundary line "shall be conclusive." The expenses of these proceedings shall be determined by the Commissioner, whose decision shall be final, and shall be borne proportionately by licensees of the adjourning grants.

In case, however, of disputes as to the ownership of balata, the same procedure has to be followed as governs disputes regarding gold, viz.: the person claiming the balata must file his claim in writing with the Commissioner, who, after hearing evidence and making investigation "personally or by means of any officer of his department, shall have power to make such order as to the disposition of the balata and as to the costs of the inquiry as he may deem just." From the decision of the Commissioner on this point there is, of course, the right of appeal to the Supreme Court.

This is the essence of the whole bill, which also empowers the Governor and the Court of Policy to make regulations "for any of the purposes of this ordinance."

PROGRESS IN BRITISH GUIANA.

TO THE EDITOR OF THE INDIA RUBBER WORLD: All our rubber is looking splendidly from the oldest trees planted out to the stumps in the nurseries. The measurements of the oldest trees, taken when exactly $2\frac{1}{2}$ years old, 11 inches in circumference 3 feet from the ground, show for the best one an average of 81.5 inches, which I think is very good, as they are now increasing in girth very much quicker than at first. Then we have trees of 15 months up to 5 inches, and many



"HEVEA BRASILIENSIS" AT BARTICA, BRITISH GUIANA.

just a year old that are over 4 inches; in fact, we have not one rubber plant on the estate that is unhealthy looking. The young seedlings we put out a few months ago are all coming along splendidly.

We have just finished up three years from the time I commenced to take the rainfall here, and for that period I should say that it was about the best in the way of distribution of the rainfall known on any rubber estate in the world. The details I have sent to the New York office, and if they interest you doubtless they will let you have a copy. Our longest times without rain for the three years have been once ten days, twice nine days, once eight days, once seven days; so that only five times in three years have we had a week at a time without rain, and the rainfall for each of the three years is practically the same, as follows: From September 1, 1908, to August 31,

1909, 110.28 inches; 1909 to 1910, 111.06 inches, and 1910 to 1911, 110.54 inches. During the three years we have had 296 dry days and 799 days with rain, so that with that kind of rainfall and all our other conditions taken into account, I do not see how it is possible for rubber trees not to thrive.

I find that I have a rough copy of the statement that I sent to the office which I am enclosing. It was taken from our book, which I am quite certain has been kept properly, as with the exception of the past three months it has been kept by my wife or myself, and during the past three months by my assistant, who is a very good and reliable man. G. B. WITHERS.

THE HILLS ESTATE, BARTICA, BRITISH GUIANA.

Rainfall for Past Three Years.

Rainfall.	1908 to 1909. 1909 to 1910. 1910 to 1911.		
	Inches.	Inches.	Inches.
September	6.44	3.73	7.04
October	6.51	10.14	5.37
November	10.23	4.59	8.03
December	15.14	10.52	3.83
January	5.13	11.50	10.70
February	12.37	8.81	10.12
March	7.23	10.72	8.93
April	5.95	8.10	12.99
May	13.57	8.82	12.88
June	11.68	15.42	12.78
July	8.71	12.92	10.14
August	7.32	5.79	7.73
Totals	110.28	111.06	110.54

(EDITOR'S NOTE.—Mr. Withers, who is superintendent of "The Hills" estate, sends, in addition to the rainfall table, some very interesting additional figures. For example, he has kept a record of wet days and dry days. From 1908 to 1909 there were 122 dry days and 243 wet days. The next year there were 91 dry days and 274 wet days, and the year following 83 dry days and 282 wet days, all of which is exceedingly interesting.)

BRITISH GUIANA NOTES.

BRITISH GUIANA AND THE LATE RUBBER EXHIBITION.

THE presentation of the silver cups won at the late International Rubber Exhibition by Mr. W. Hodgson of Pin Nortgedacht and the Consolidated Rubber and Balata Estates, Ltd., for rubber and balata exhibits, respectively, was made with appropriate ceremony on September 22, at Georgetown, by the Acting Governor of British Guiana. In the course of his remarks he alluded to the fact that the judges had pronounced Mr. Hodgson's samples to be equal to the very best they had seen from the East. He likewise referred in complimentary terms to the award of the balata trophy to the above-named corporation.

SIR FREDERICK HODGSON ON DEVELOPMENT IN BRITISH GUIANA.

COMMENTING upon the general situation in British Guiana, Sir Frederick Hodgson, the retiring Governor of that colony, alluded to the good work being done by the Government agricultural stations, adding: "The rubber industry is forging ahead and several companies, backed by English capital, have started work. The export is at present small, but rubber will prove in the near future to be one of the most important industries of the colony."

BRITISH GUIANA DOUBLES RUBBER ACREAGE.

At a recent meeting of the British Guiana Board of Agriculture, Professor Harrison reported that the area under cocoa was a little smaller than recorded for last year, due to certain people turning their attention to rubber. The rubber acreage had about doubled.

DOES "SAPIUM" GROWING PAY?

In a recent contribution to "Timehri," the journal of the Royal Agricultural and Commercial Society of British Guiana, Mr. Edgar Beckett raises the question, whether the *Sapium Jenmanii* yields rubber at a sufficiently early stage of growth to make *Sapium* rubber growing a commercial undertaking. He asks whether we have to wait for five or fifty years before a product comparatively rich in rubber and poor in resin is obtained.

According to Mr. Beckett, some of the wild *Sapium* trees in British Guiana yield a rubber which can command a price, when cleanly prepared, very little below that of fine hard Pará.

BLEEDING OR CUTTING DOWN BALATA TREES.

THE proposal recently ventilated that instead of balata trees being partially bled and kept alive for future bleedings, they should be cut down entirely and every ounce of balata extracted, occasioned much surprise in the colony. On calmer consideration, however, many people began to think there was a great deal in the suggestion.

A prominent member of the British Guiana Balata Association has expressed the opinion that from a business standpoint the latter plan is much preferable. The question is one of figures, the point being what will the yield be by cutting down the tree and how much will it cost, as compared with the yield and cost by periodical bleedings. On this subject he remarked:

"It is understood that the balata tree on being cut down yields 30 lbs. to 40 lbs. of milk, whereas under the present system the quantity obtained by a good bleeder is only some 5 lbs. By periodical bleeding, therefore, it would take 30 years to get a result obtainable immediately by cutting down the tree, and I venture to say that there is hardly anyone in the colony who will contradict the statement that at the end of 30 years the trees will be dead. The cost of periodical bleedings must necessarily be very much greater than the cost of cutting down trees, and, the question comes to be whether is it better to bleed entirely a tree at once or allow it to remain till it dies within a period of 30 years? The answer is clear when I state that balata is today fetching a high price and that no one can say what will be the state of the balata market 30 years hence. It must be borne in mind that the price of rubber will probably drop in the next few years, owing to the large cultivation of that article now going on throughout the world, and the drop in the price of that commodity will undoubtedly affect the price of balata. It is obvious, too, that the system of cutting down trees and thus providing employes with more regular work would put employers in a better position to handle labor."

AMERICAN AND DUTCH CAPITAL IN BRITISH GUIANA.

IN reporting the satisfaction with which the despatch of the British Colonial secretary with reference to a proposed increase in the salary of the governor had been received in British Guiana, a Reuter's despatch from Georgetown adds:

"Most of any hinterland development that has been carried out is the work of American capitalists. They have the gold and diamond industries—both capable of much, if sufficient capital were introduced to carry them on properly—almost entirely in their hands, and, whilst most of the rubber and balata companies are British, there are large corporations that represent American and Dutch capital. The sugar industry (the staple industry) is the only one carried on exclusively by people in the Homeland; but here again Great Britain is doing little to encourage it, taking very little sugar, by far the bigger proportion of the crop going to Canada.

"That the natural resources of the Colony are wonderful cannot be doubted, but the contrast between 'what is' and 'what might be' is most striking. In a district comprising thousands of miles only a few hundred acres are cultivated. At these patches rubber is growing in the most promising manner, and

coffee, cocoa, cocoanuts, fruit and ground provisions are produced in abundance, and yet all around is bush. The great necessity of the Colony for the development of its industries is railway construction, and what every person in British Guiana is undoubtedly hoping is, that a new governor will be appointed of such experience and proved capacity in constructive administration, as will enable him to bring into existence the railways which alone can give the Colony that great access of prosperity for which all the natural material is at hand."

BIG AMERICAN SYNDICATE?

An interesting rumor is quoted by the "Daily Argosy," of Georgetown, to the effect that a big American syndicate contemplates going in for the gold, timber and balata industries of British Guiana. The syndicate, it is said, has a large amount of capital, so is in a good position to carry on the industries for all they are worth, which, in the opinion of many familiar with the resources of the colony, is all that is required for highly remunerative returns to be obtained. The lands to be applied for are in the direction of the Venezuelan frontier. The name of the syndicate has not been divulged yet, but its local representative is said to be a well-known gentleman.

BALATA BLAZE.

A Benab belonging to the Consolidated Rubber and Balata Estates, Ltd., and situated on one of the company's balata grants on the Siparuni, has been burnt down, and 1,000 pounds of balata destroyed. It has not been ascertained how the fire originated, and this can only be conjectured. The balata had been placed in the benab to dry and blazed furiously.

AN INTERESTING LECTURE IN PROSPECT.

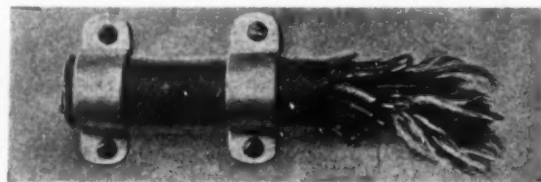
At a recent meeting of the British Guiana Royal Agricultural and Commercial Society, the president stated that a promise had been received from Dr. Cramer, of Surinam, to give a lantern lecture on "Rubber Growing in the East and West." He added that Dr. Cramer would come from Surinam for the special purpose of delivering the lecture.

TRANSPORT TO BALATA GRANTS.

At a recent meeting of the Balata Association a sub-committee was appointed to go into the matter of transport to the balata grants by means of roads. It was arranged to take steps to get a flying survey of the district from the Potaro point south.

THIRTY-SIX YEARS OLD AND STILL AT IT.

Very few pieces of mechanism that began work 36 years ago are still doing duty, but there is one at least, and that is a piece of aerial cable suspended under one of the elevated railway structures in Brooklyn. It was in use for a good many years



A PIECE OF CABLE 36 YEARS OLD.

on the Brooklyn Bridge, and then was transferred to its present position. Altogether it has been doing duty for 36 years and is still intact and serviceable. We herewith show a cut of a small section of it. It was made by the Kerite Insulated Wire and Cable Co., New York, of which fact they certainly have no reason to be ashamed.

A MEXICAN PLAN FOR TAPPING "CASTILLOA."

TO the EDITOR INDIA RUBBER WORLD: Some months ago I contributed to your journal a short article illustrating with a sketch what I believed to be an advance in the direction of tapping *Castilloa* with less excision of bark than is the general custom. I took occasion to say that the use of the chisel one and a half inch in width with a long burl was a modification of the Trinidad and Tobago system, but that my plan provided a permanent system of channels to convey the latex to a cup or other receptacle. I regretted to observe that the sketch was defective as published, inasmuch as the chisel cuts were not shown, though a careful reading of the text would perhaps have been sufficient. Since then another idea has presented itself and is shown in accompanying sketch.

This system contemplates operation on virgin trees, either wild or cultivated, such as have not already been scarred by any other plan, or no plan of tapping. To make the application of this method as clear as possible we will assume that a group of trees, to be operated upon have a diameter of ten inches, or in round figures a circumference of thirty inches, and the height of the channels to be ten feet from base to upper end. A cord can then be attached to a little peg driven into the bark at ten feet from the ground, drawn tight and fastened to another peg at the base of the tree. The entire angle should not describe more than one-third of the circumference of the tree. This cord should have a marked line drawn along it on the bark; in other words the bark must be marked with some pigment or colored chalk to serve as a guide for the tools as extreme care should be exercised to have these channels correctly made. The excision need not exceed more than one-half of the thickness of the bark. Some difficulty may be experienced in the beginning with individual trees, the latex of which may not be sufficiently fluid to run freely down the channel, but not more than in any other system; rather less indeed, since the angle is but a few degrees of inclination from the perpendicular, while all other methods as far as I know involves transverse excisions at an angle approximating 45 degrees; over the lower edge of which the latex often falls.

The plan now under consideration provides for three of these

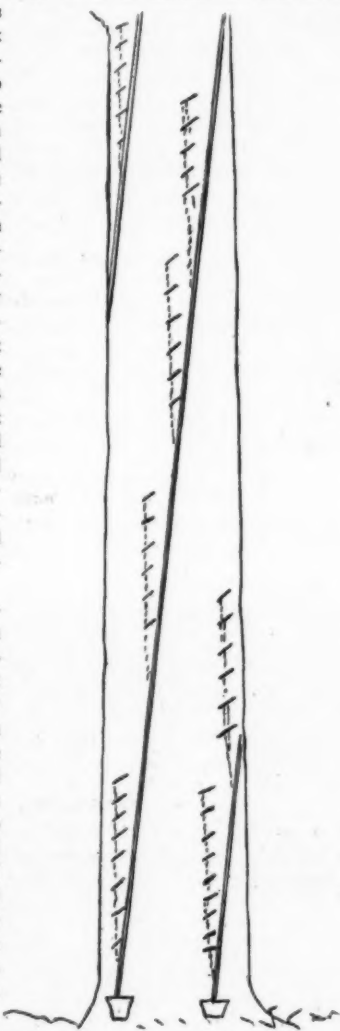


DIAGRAM SHOWING METHOD OF TAPPING "CASTILLOA."

nearly perpendicular channels to be made, not at once but at intervals of three or four months, perhaps longer, according to the vigor and size of the tree; the chisel incisions to be made in a series as shown in sketch. It will be seen that these incisions are in strictly perpendicular series and the incline of the long channel is sufficient to catch and guide the latex to the receptacle at the base.

In establishing the long channels I have said that the excision need not be made more than half the thickness of the bark. When such latex as may be secured is free from the channel, the knife or cutting point can then be run down the center of the channel, lightly touching the cambium where a much increased flow will be had. By this will be understood that most V or U-shaped knives for tapping *Castilloa* have a fine penknife-like attachment to run down the center of the excision made by the first operation.

After a proper lapse of time the chisel operation is then worked and no further excision of bark occurs. One great advantage of the slightly inclined long channel is that less proportion of bark is removed than with the strictly perpendicular channel with the lateral transverse contributing channels; moreover the growth of new bark is in almost uniform line with the expansion of the tree trunk, and the transverse excrescences are done away with.

If we are to accept the evidence up to date as final, viz.: that the phenomenon known as wound response, occurring in the tapping of *Hevea*, is wanting in *Castilloa*, it stands to reason that with the continuing excision of bark in *Castilloa* as now generally practised, a time must come when the tree will require a very long rest to restore the connection between the lactiferous tubes. Physiologically the union should be made much quicker in the case of incision with the long bevelled chisel. This method is not offered as a final solution of the problem of tapping *Castilloa*, but I believe it is in the line of progress, and I trust my fellow planters will give it their consideration.

J. C. HARVEY.

EXTRACT FROM A LETTER FROM MR. HARVEY, DATE OF AUG. 25/11.

That which most interests me is the amazing growth made by the *Hevea* trees in our El Palmar nurseries—since I was last here in May. Just before my departure for England our seedlings from seeds sown last November stood at a general average of 4 feet. I now find an average growth up to 6 feet, and perhaps one-third of the plants have reached 8 feet, and a few have reached 9 feet. Such astonishing vigor I have rarely seen in any class of plants I have had to deal with. These plants—some 5,000 of the best ones—we are about to transport to permanent position with new nurseries ready for the daily expected receipt of 100,000 seeds from Ceylon.

A recent communication of the Tehautepec Rubber Culture Co., New York, whose property is at Plantation Rubio, Coatzacoalcos, Vera Cruz, Mexico, contains the following statement: "Since the report of May 26, tapping has been continued as the season permitted. Twenty-two thousand seven hundred and eighty trees, with a circumference of 12 to 15 inches 3 feet from the ground, not previously tapped, produced 633 pounds of rubber, shipping weight, with a cost for tapping of 374 labor days. Eight hundred and forty-five re-tapped trees, 16 inches and upward in circumference 3 feet from the ground, produced 22 pounds of rubber, shipping weight, with a cost of 40 labor days for tapping.

"The present policy of the company is to produce all the rubber that can be produced without injury to the trees, to improve so far as possible the physical condition of the trees and of the soil, and to discover and apply the methods which will produce *Castilloa* rubber in the largest quantity, of the best quality, and at the lowest cost."

Rubber Planting in the Middle East.

An Analysis of the Prospects of the English Companies Based on Carefully Prepared Statistics.

WITH the recent development of Asiatic rubber cultivation, it has been difficult to form a typical or aggregate idea of the results achieved, and of the yield to be anticipated in the future. A step in this direction is the interesting statement of Messrs. Gow, Stanton and Wilson, of London, lately reproduced by the *Home and Colonial Mail* of that city, in the form of "Particulars of 55 rubber producing companies in Ceylon, the Straits Settlements, Borneo, Java and Johore."

Two questions of interest are suggested by this statement: What are the results shown for the 55 companies indicated? And further, what proportion do these results bear to those of the much larger number of companies not included in the list?

NUMBER OF COMPANIES.

In dealing with these points, it is first necessary to define how many rubber companies are operating within the limits named. The "Rubber Share Handbook" includes about 500 companies, of which about 350 are in Southern Asia. The remaining 150 are divided between Africa and America, but this figure cannot be considered as representing the proportionate importance of rubber cultivation in the last-named continents, much of which is in private hands; while the 350 companies operating in Asia prob-

from 8 per cent. of those in other parts of Southern Asia, must necessarily be misleading. Such, however, is not the case. The real test is the proportion of such figures (when upon a sufficiently typical scale) to the total output. Owing to the relatively larger number of Malay companies reported upon, as compared with those in other parts of Southern Asia, the consideration of the details quoted from 43 of the first-named class (apart from the other 12), will throw light upon the question of future Asiatic rubber supplies from that direction.

OUTPUT OF SELECTED COMPANIES.

Taking the figures of production recorded for 1910 in respect of these 43 companies as about 8 million pounds, there would be left for the 150 smaller companies about 4 million pounds to make up the total of about 12 million pounds claimed to have been produced last year. Hence the records of these 43 corporations may justly be regarded as representing the output of the companies at present in a productive condition.

ESTIMATED RETURN ON CAPITAL.

On two points the dissection of the figures will be found of special interest, one affecting the past and the other the future.



HEVEA RUBBER IN GRASS, THEN CLEARED AS THE SHADE BECAME DENSE.



HEVEA TREES PLANTED IN JUNGLE IN POOR SOIL, SINGAPORE GARDENS—NEVER WEEDED OR ATTENDED TO.

ably cover the extent of Asiatic production, which is largely controlled by incorporated companies.

Geographically divided, the following distribution is shown for the Asiatic companies:

	Total companies in Rubber Share Handbook.	Companies in Gow, Wilson & Stanton's list.
Malay States	193	43
Ceylon	97	7
Borneo, Sumatra, etc.....	60	5
	350	55

At first sight, it would seem that any figures based on returns from only 20 per cent. of the number of Malay companies and

The aggregate paid-up capital of the 43 companies equals nearly 30 millions of dollars. On this capital, 8 million pounds of rubber (worth under normal conditions about \$8,000,000 to \$10,000,000) would not represent a very large annual return, after deducting expenses of cultivation and distribution; so that a further increase of profits is naturally dependent on the gradually higher productiveness of the plantations now under cultivation.

NUMBER OF TREES.

With regard to this question, the first point to consider is that this 1910 yield of 8 million pounds was evidently furnished by the trees now ranking as "6 years and upward," and which had presumably commenced to yield rubber last year. These trees now number 1,371,215.

The returns of additional trees planted and now growing, illustrate the natural future output.

TREES FIVE YEARS OLD AND LESS.

	Trees.
Five years old, maturing 1911.....	768,245
Four years old, maturing 1912.....	1,883,563
Three years old, maturing 1913.....	2,757,148
Two years old, maturing 1914.....	3,968,286
One year old, maturing 1915.....	2,629,471

Total now growing and not yet matured..... 12,006,713

Adding to these 12,006,713 trees not yet matured, the 1,371,215 trees reported as 6 years and upwards, the grand total is reached of 13,377,928 trees now planted by these 43 companies and producing or maturing within the next few years:

TOTAL OF TREES PLANTED BY 43 COMPANIES.

Six years old or more.....	1,371,215
Five years old.....	768,245
Four years old.....	1,883,563
Three years old.....	2,757,148
Two years old.....	3,968,286
One year old or less.....	2,629,471

Total trees now planted by 43 companies..... 13,377,928



BADLY TAPPED "HEVEA" TREE, BUT SINCE RECOVERED.

AVERAGE OF FOUR POUNDS PER TREE.

Allowing that even 2 million trees furnished the 8 million pounds of 1910, this proportion would represent an average of

4 pounds per tree. The product of these 43 companies would thus apparently represent:

	Trees.	Product, lbs.
1910-11	2,000,000.....	1910-11 8,000,000
Added, 1912.....	2,000,000	
Total, 1912.....	4,000,000.....	1912 16,000,000
Added, 1913.....	3,000,000	
Total, 1913.....	7,000,000.....	1913 28,000,000
Added, 1914.....	4,000,000	
Total, 1914.....	11,000,000.....	1914 44,000,000
Added, 1915.....	2,500,000	
Estimated total, 1915, of 13,500,000.....		1915 54,000,000

These figures, it will be remembered, apply to only two-thirds of the present product, so that taking the same proportion for the other third, the result would be:

	43 Companies.	150 Companies.	Total of 193 companies.
1910, lbs.....	8,000,000	4,000,000	12,000,000
1915 (estimated) lbs..	54,000,000	27,000,000	81,000,000

Of course it is doubtful whether the 150 companies not reported upon, have been planting on the same scale as the 43 selected for illustration, but an extension of present output may be considered likely.

OLD AND NEW COMPANIES.

In this connection an interesting fact is shown by the dates of registration of the aggregate of 193 companies, and of the 43 reported upon.

MALAY COMPANIES.

	Registrations.	Producing companies now reported upon.
1903 and earlier.....	7	4
1904	7	5
1905	9	3
1906	24	19
1907	16	7
1908	6	2
1909	58	3
1910	59	—
1911	7	—
Totals	193	43

That the supply from the 150 additional companies, may, by 1915 reach a higher proportion than one-half of that of the 43 selected ones, is another contingency, only to be defined when similar particulars are published as to the former. A glance at the preceding table of registrations will show, that out of 69 companies registered up to 1908, chiefly in 1906 and 1907, 40 have now reached a productive stage, while only 3 companies of the 58 registered in 1909 appear in the selected list (and none of 1910 or 1911 registration) thus leaving 150 companies still to be heard from, whose yield will have to be taken care of in succeeding years.

PARTICULARS OF OTHER COMPANIES.

The value of the above-named table affecting the 43 producing companies (which is reproduced below) would be enhanced by similarly arranged particulars being issued for the other 150 companies, at present "dark horses" in the field. To satisfy their shareholders they must ship rubber, and it would be of material interest to know the extent of such prospective arrangements for the years 1912 to 1915.

PLANTINGS OF 43 MALAYAN RUBBER COMPANIES.

	Total Number of Trees.	6 Years and Upwards.	5 Years.	4 Years.	3 Years.	2 Years.	1 Year and Under.
Malacca Plantations	2,750,000	271,000	114,000	365,000	600,000	750,000	650,000
(E) Johore Rubber Lands.....	885,000	.....	.....	220,000	220,000	220,000	225,000
London Asiatic	966,277	.....	.....	16,237	32,932	585,861	331,247
Anglo-Malay Rubber Co.....	556,572	79,866	68,503	161,010	161,009	86,184	.....
Rubber Estates of Johore.....	541,663	.....	.....	.....	169,860	201,970	169,833
(E) Highlands and Lowlands.....	474,000	110,600	20,600	63,000	76,600	98,700	104,500
(E) Lanadron	461,500	56,700	15,000	44,000	96,200	142,400	107,200
Jugra Land and Rubber.....	450,000	.....	.....	.....	21,600	324,400	104,000
(E) Linggi Plantations.....	419,200	102,100	30,700	33,200	116,100	137,100	.....
Kuala Lumpur Rubber.....	393,012	57,989	20,282	59,005	74,259	94,852	86,625
Straits Bertram	360,189	41,549	3,130	112,643	63,632	120,140	19,095
Seafield	335,826	.....	50,510	92,558	69,096	42,168	81,494
Chersonese	292,850	2,850	.....	.....	95,000	180,000	15,000
Bukit Rajah	284,424	109,411	20,420	39,785	28,546	17,304	68,958
Kemuning	253,792	4,002	270	10,328	42,849	62,912	133,431
Totals of 15 largest companies..	9,424,305	836,067	343,415	1,216,766	1,867,683	3,063,991	2,096,383
Batu Tiga	232,059	.....	55,211	.....	59,698	90,300	26,850
Tremellye	228,370	.....	.....	20,000	80,000	120,000	8,370
Consolidated Malay	227,513	43,347	44,000	80,252	23,038	20,000	16,876
Inch Kenneth	213,400	14,200	54,000	16,600	49,600	79,000	.....
(E) Sungei Kapar	204,100	32,500	21,300	40,000	49,800	20,000	40,500
Pataling Estates	204,044	44,823	35,820	40,000	63,000	20,401	.....
(E) Kapar Pará Rubber.....	195,600	300	22,800	36,300	68,500	63,500	4,200
Batu Caves	165,542	28,978	.....	45,911	58,842	23,934	7,877
Sungei Way	164,220	8,800	23,400	55,820	55,950	20,250	.....
Castlefield Klang	162,368	33,200	.....	55,000	3,000	35,000	36,168
Scottish Malay	157,700	.....	.....	50,000	.....	57,700	50,000
Klanang Produce	156,165	8,781	19,320	9,564	48,400	26,100	44,000
(E) Selangor	150,500	87,700	4,900	29,200	26,100	2,600	.....
(E) Sungei Salak	145,700	.....	.....	10,200	19,600	54,000	61,900
(E) Ledbury	142,700	30,100	3,000	7,200	24,900	41,300	35,600
Fed. Selangor	128,397	35,985	8,677	18,196	51,287	5,635	8,617
(E) Vallambrosa	121,400	30,000	30,000	10,000	10,000	11,400	30,000
Banteng	117,567	.....	9,000	20,600	27,450	13,000	48,117
Shelford	104,587	30,134	40,302	20,376	.....	13,775	.....
(E) Golconda	99,200	32,900	.....	20,800	45,500	.....	.....
Damansara	93,313	40,000	2,800	12,000	15,000	11,000	12,513
Val d'Or	89,000	.....	.....	.....	22,000	15,000	52,000
Harpندن	83,978	28,000	28,000	27,978	.....	.....	.....
(E) Cicely Estates	82,900	.....	15,900	19,400	24,100	20,000	3,500
(E) Golden Hope	82,300	3,500	21,800	18,500	21,900	16,600	.....
(E) Perak Plantation	71,900	30,800	4,300	1,200	5,500	30,100	.....
(E) Allagar	67,900	1,100	10,300	12,300	6,300	17,900	20,000
(E) Hidden Streams	61,800	.....	.....	.....	.....	47,200	14,600
Aggregate total of 43 companies	13,377,928	1,401,215	798,245	1,893,563	2,727,148	3,939,686	2,618,071

NOTE.—The mark (E) indicates that the number of trees at each stage of growth is estimated from the acreage quoted, at the rate of 100 trees per acre.

IS NOT THIS RATHER SEVERE?

THE London "Financier" recently expressed itself regarding rubber matters in South America in the following not very complimentary fashion:

"The South American rubber industry, of course, is now paying the penalty for the debauch of rascality which has characterized the greater part of its career in association with the European investor. There have been, from first to last, millions of British money sunk in the development of this industry. Company after company has been floated in Great Britain during the past 20 years (to go no further back) to supply the capital necessary for the opening up of South American wild rubber resources, but with scarce an exception the investors who confided their money to such concerns have not only failed to obtain any return upon it, but have been called upon to face the loss of capital as well. The various governments may consider themselves clear of all responsibility in such matters, and technically their assumption of this attitude is correct. But they cannot wholly evade responsibility for the evil-doing of their citizens, and they must know that the communities were to a considerable extent benefited by the inflow of British investors' money, which, even when not applied to the objects for

which it was obtained, helped directly and indirectly to enrich these rubber-producing countries. Had these countries, too, failed to produce rubber in commercial quantities the British investor might have less cause for grievance in this connection. We know, however, that not only does South America produce by far the larger share of the world's supplies of high-grade commercial rubber, but that those engaged in this business on a large scale have made huge fortunes out of such enterprises. To these people the distressed governments ought to turn for help rather than expend their energies on formulating relief schemes on the lines of those brought forward by the Brazilian rubber states. The British investor cannot be held responsible for the unfortunate state of affairs which exists in connection with the Amazon rubber industry. This condition is the outcome of a total disregard on the part of those engaged in the South American rubber trade of ordinary commercial precautions, and an inability to grasp the potentialities in the matter of production behind the plantation rubber industry as it exists today in the Middle East. The ignoring of these potentialities by the Amazon rubber people is a trivial factor in their present distress, and the fact that it will become a very potent factor in the future has very little bearing upon such troubles."

RUBBER INTERESTS IN THE PHILIPPINES.

THE superintendent of the experiment station at Manila, Philippine Islands, Professor O. W. Barrett, issues some exceedingly interesting and practical suggestions regarding the planting of Pará rubber. As this is intended for American planters, resident in the Philippines, who, by the way, are becoming more and more interested, and for whom there is a decidedly bright future, the instructions are published in *extenso*:

Removal From Seed Bed.—The plants should be taken up only during the rainy season. Unless the soil has been wet with rain the bed must be watered so that the earth will adhere more or less to the roots.

In most cases it will be necessary to cut or break some of the larger roots in removing the seedlings; if many roots are lost in this process it will be necessary to remove some or all of the leaves to prevent evaporation of the sap in the stem before new roots are formed.

The amount of balling which should be done will depend on the character of the soil, the age of the roots, the manner of packing, etc.; generally speaking, the more earth which can be taken up with the plant and packed firmly into a ball around the roots, the less the plants will suffer from the shock.

Whether transported in baskets, tins, or boxes, the seedlings must be protected from drying out and from exposure to the sun.

Seedlings having a height of 1, 2 metres (40 or 80 inches) or more should be cut back to about 60 or 80 centimetres (24 or 32 inches) a few days before removing them from the nursery. The seedlings may be taken up when they have attained a height of 1 metre, and should never be allowed to reach more than 2 metres before transplanting; in special cases trees of 2 or 3 metres could be transplanted in favorable weather by cutting back to about one-half their height before transplanting. Care should be taken to prevent scratching or bruising the bark in handling the seedlings.

Planting.—Setting into the holes should be done after sunset or rainy days.

The location of the plantation should be such that strong winds cannot damage the trees. If there are no adjacent hills or forest trees to break the force of the wind, belts of trees, such as eucalyptus, cocoanut, bonga, or mango, should be planted around and through the plantation, before or at the time of setting out of the Pará trees. Rows of cacahuate (*Gliricidia maculata*) or ipil (*Lucaena glauca*) may be planted—the former by cuttings, the latter by seeds—as temporary protection, or in conjunction with other kinds, like bonga, cocoanut, and eucalyptus.

Sandy soils are dangerous on account of the quickness with which they become dry; low wet soils containing stagnant water cannot be used, though some wet lands can be drained sufficiently to become safe. Localities which regularly suffer from droughts of more than a few weeks duration should be avoided unless adequate irrigation can be provided. Both alluvial and mountain soils are suitable provided they are always moist.

Holes.—The holes should be prepared two to four weeks before transplanting. They must be at least 1 metre in diameter; a depth of 25 to 50 centimetres is recommended. The subsoil, if poor, should be removed to a distance of at least 50 centimetres below the surface of the ground. In filling the holes only "top soil" (to a depth of 10 to 15 centimetres) about the holes may be used; care must be taken to avoid introducing grass roots or weed seeds with this earth. A few days before the Pará plants are set in, the holes may be filled nearly full to avoid delay and exposure of the seedling at the moment of transplanting.

Any broken or dead roots should be pruned off with shears or a sharp knife just before putting the plant into the hole.

The earth must be firmed in well around the roots so that there shall be no air spaces or lumps to cause trouble later. If the earth is not sufficiently moist the trees should be watered at

the time of transplanting and, of course, as often as may be necessary until they are well established.

The proper distance between the holes depends upon local conditions and the plans of the planters in regard to secondary crops. If the plantation is on old cleared ground the trees may be set at 5 or 6 metres, whereas on rich or recently cleared areas 7 to 9 metres would probably prove better, especially if some secondary crop is to be grown during the first few years. There is no serious objection to setting the trees 6 metres providing the weaker trees are removed (tapped to death) as soon as they begin to interfere with the development of the vigorous individuals.

Cultivation.—At no time during the life of the Pará tree may grass of any kind be allowed to grow over the "feeding area" of the roots. The degree of cultivation given to the space between the Pará rows will depend largely upon the local conditions. As soon as convenient all brush, weeds and grass should be eliminated. The surface of the ground, at least near the Pará trees, should be planted with beans or some kind of leguminous cover crop which will not only keep down the grass and weeds, but will keep the area over the roots of the rubber comparatively cool and moist, and at the same time furnish nitrogen to the soil instead of poisoning it with root excretions, as in the case of grass.

Due precautions against fires must be taken.

No secondary crop like camotes, cassava, or bananas should be planted nearer than 2 metres from the Pará; after the third year from transplanting no secondary crop, except legumes, may be grown in the plantation.

The kind of legumes recommended for planting as cover crops in the Philippines are Centrosema bean, Lyon bean, yam bean, velvet bean, sword bean, and any of the native beans; cowpeas, mani manihan, peanuts, cacahuate, and ipil (*Lucaena glauca*.)

The cacahuate, or balóc-balóc, is a shrub or small tree, especially recommended because it may be readily grown from cuttings stuck into the ground; it can be cut back whenever its height exceeds 1.5 or 2 metres, the removed branches helping to increase the humus layer on the ground. The habit of shedding its leaves for a few weeks in the dry season is a disadvantage in using this species: the ipil, or datels, is not deciduous.

If the soil becomes packed, i. e., so wet and clogged that air and water cannot readily circulate through it, it should be forked by the vertical process, i. e., by thrusting a strong-tined fork down into the ground to a depth of 10 to 15 centimetres, then, after loosening the tines, the fork is withdrawn without breaking the roots.

The young Pará trees must be protected from the depredations of pigs, deer, etc.; a woven-wire fence is unquestionably the best means of protection. A very closely planted row of bonga palms (*Areca catechu*) can be utilized after about their fourth year as a live fence; bamboo strips may be woven into it and tied so that even pigs cannot force an entrance; or maguey may be planted between the bongas very effectively.

If live mulches, or cover crops, are not used about the young rubber trees some kind of straw or leaf mulch should be kept over their roots except in very rainy weather. The layer of dry grass, rice straw, or similar material should be just thick enough to prevent the growth of weeds without smothering the Pará roots; it should not touch the stem of the tree; it should be turned over occasionally.

All colonies of white ants (*Termes* spp.) in or near the plantation should be destroyed either by poisoning, fumigating, or "puddling."

All decaying wood should be removed from about the roots of the rubber.

At the Turin Exposition three *Grand Prix* awards in addition to one Diploma of Honor, have been granted the Vereinigte Gummiwaaren-Fabriken Harburg-Wien, in recognition of the varied excellence of its products.

Rubber Growing in the Temperate Zone.

CAN RUBBER TREES BE SUCCESSFULLY CULTIVATED IN THE UNITED STATES?

IN all the magazines published in the west the pages are filled with glowing accounts of the phenomenal opportunities of making a fortune in a few years by planting fruit trees. For example one instance is cited where a party reached a certain fruit section with but \$650 to his name. In twelve years he has managed to secure thirty acres and plant same in apple trees. He now claims that his orchard is worth at least \$100,000, as he realizes \$300 to \$500 per acre annually. Such examples are held up before the public as being within the reach of all, so that many are tempted to try their luck at the same game. Having myself passed through many such orchards I must confess that this field does seem to offer a comfortable competence to

prospectuses of companies developing rubber plantations in Mexico. These compare very favorably with similar documents issued by promoters of fruit lands. Of course they are overdrawn as, for example, the claim made by one of these rubber promoters that two hundred *Castilloa* trees can be planted to the acre, that a conservative estimate would be to count on at least four pounds of rubber per tree annually, worth at least one dollar per pound. A gross income of eight hundred dollars per acre, from which the cost of gathering, namely two hundred dollars, is deducted to secure a net income of six hundred dollars, would compare rather favorably with three to five hundred dollars from an acre of fruit trees. Any one at all conversant with rubber planting knows that the above figures could not be secured except under most phenomenal conditions, and then only in isolated



PLATE NO. 1. *Ficus Elastica* IN FRONT OF HOTEL CORONADO, CORONADO BEACH, SAN DIEGO, CAL.

many a man of limited means. It is indeed a beautiful sight to see a well kept orange grove in full bearing. Throughout the fruit section everything has a distinct appearance of prosperity. Naturally the world hears of the successful ones only. It never is reminded of the hundreds of clerks who have lost their all in trying to become fruit growers.

In Santa Barbara and San Diego I have seen splendid specimens of *Ficus Elastica* that must be many years old. Some of these must have been planted thirty or more years ago, but strange to say, nobody seems to have taken notice of the fact that these are actual rubber producing trees. Where our western people are so keen to take advantage to exploit anything and everything it does seem remarkable that some live promoter has not seen the golden opportunity to make a fortune out of rubber produced in his own country. At various times I have seen

cases. But if we cut the promoter's figures in half we are not so far away from actual facts. Then compare these figures with what is done with fruit lands. The results are pretty much the same, with the advantage on the side of the rubber grower, for he does not have to lose any part of his crop as the fruit grower does when he cannot pick the fruit in time; for if the rubber tree cannot be tapped today it is perfectly safe to wait until tomorrow.

Practically all the fruit grown in California is on irrigated lands. The same would probably have to be done with rubber, although all the trees I have seen were in parks or private grounds where no irrigation was in evidence.

As regards the climatic conditions the following figures secured from the climatological service of the weather bureau, United States Department of Agriculture, covering an average year, give

evidence that rubber tree culture may be possible. That these figures must be fairly accurate, and that they must have held good for many years is furthermore proven by the photographs. The figures show the maximum, minimum, and average monthly temperatures in degrees, Fahrenheit, and the rainfall in inches for this particular year at San Diego and Santa Barbara.

Temperatures.

	San Diego.			Santa Barbara.		
	Max.	Min.	Av.	Max.	Min.	Av.
January	73	35	53	75	34	51
February	84	41	60	85	38	59
March	82	40	56	79	36	54
April	75	43	59	80	42	58
May	73	51	61	85	42	60
June	80	52	63	90	45	63
July	81	59	68	108	51	68
August	75	60	67	83	53	65
September ...	79	50	65	85	46	64
October	78	54	65	87	47	63
November ...	86	45	61	85	38	59
December	79	43	58	84	38	56

Rainfall.

	San Diego.	Santa Barbara.
January	3.27	12.46
February ....	.45	2.34
March	1.62	5.64
April .....	.13	.27
May .....	.07	T
June .....	.19	.16
July .....	.03	.00
August .....	.00	.03
September ...	.00	T
October	1.71	6.23
November ...	.00	T
December ...	.43	1.80

7.90 28.93 Total for year.

It will be noticed that the minimum temperature for the year, namely 35 degrees, was reached at San Diego in January, in which month the photographs were taken.

Plate No. 1 represents a vigorous specimen which stands in the grounds of the Hotel Coronado, Coronado Beach at San Diego. The photograph plainly shows that the luxuriant foliage was not affected by the low temperature.

Plate No. 2 shows an exceptionally large tree located in a public park in San Diego. From the trunk of this tree to the tip of its branches it measures thirty-two feet.

All the specimens herewith illustrated show a thoroughly healthy development uninterrupted for many years, and also indicate that the relatively sandy soil must be quite favorable.

The fact that a rubber tree has been successfully grown in a certain locality is, however, no proof that that same tree will, at the proper age, give a normal yield of rubber. Neither does it necessarily follow that such a tree must produce less rubber than it would in its native habitat, for have not the fruit trees of California, in almost all instances, brought forth better and more fruit than the corresponding trees in our eastern states? It may be argued that this comparison does not hold good because rubber trees do not grow in the east. True, but rubber trees grow in some pretty hard climates and in some pretty poor soils—under considerably worse conditions than are found in California. Careful experimenting alone will solve the commercial side of the question. The trees now existing could be systematically tapped to ascertain sufficient data as to what

amount of rubber could be expected from trees planted hereafter. Such tapping would prove too whether or not the rubber from these *Ficus* trees compares in quality with the rubber secured from like wild trees or trees cultivated in some other country.

While everything seems to point to a possible profitable new field, it would seem advisable to move slowly. There are suf-



PLATE NO. 2.—*Ficus Elastica* IN PARK IN SAN DIEGO, CAL.
[Tree measures 64 feet across.]

ficient favorable data to warrant experimental plantings at such governmental experimental stations as are located in that section of our country. Such plantings should not be confined to the one tree now known to thrive there, but should include every known species and a sufficient number of specimens of each species in order to arrive at some definite and reliable information.

F. H. HUNICKE.

RUBBER AT THE ARNOLD ARBORETUM.

For many years it has been the ambition of scientists, rubber manufacturers and others to find some rubber producer that can be successfully grown in the United States, or more broadly in the temperate zone. Experiments have been made with the milk weed, the *Aesclepias Cornuti*, in Canada, the United States and Germany, with the Ekanda tuber, with the *Manihot Glaziovii* in the United States and Germany and with many other trees, shrubs, vines and herbs. So far none have been found commercially profitable, but that does not prove that they never will be.

Some time ago the newspapers far and wide announced that the great out-of-doors forestry museum of Harvard University, Arnold Arboretum, was in possession of certain Chinese rubber trees adapted to the rigorous climate of New England and that they were growing finely. Professor C. S. Sargent in 1907-9 sent, for the arboretum, an expedition to China under the leadership of E. T. Wilson, a well known explorer and botanist. Among the hundreds of specimens that he brought back was

the "rubber tree" that produced such a ripple of excitement. It is botanically the *Eucommia ulmoides*.

The specimens with which the Arnold Arboretum is experimenting were found at an altitude of about 3,500 feet on the slopes of a mountain range near Yangtse-Kiang River, in the neighborhood of Fang in the province of Hupeh. The latitude of the region is about 32, the climate and topographical conditions not unlike those of the mountainous districts of New York and New England.

Elsewhere in China the tree has long been cultivated, not for the sake of extracting the rubber, but for the preparation of a powder from the bark which is held to have medicinal virtues.

The leaves of the tree are smaller than those of the *Ficus elastica* and are shaped more like those of the elm or beech, but they have the peculiar gloss characteristic of trees and shrubs which secrete caoutchouc.

The existence of the *Eucommia ulmoides* was first brought to the attention of European scientists about 1888 by Dr. A. Henry, who sent to the Royal Botanical Gardens, Kew, some leaves, flowers and seed pods which he had found under cultivation in central China.

The specimens were examined and described in the bulletin issued from Kew by Dr. Francis W. Oliver, Quain professor of botany in the University College, London, who gave the tree its name. Further studies were made by Prof. F. E. Weiss, who became interested in the discovery that was chronicled in the "Transactions of the Linnæan Society":

"The threads of *Eucommia* consist of caoutchouc, for they are insoluble in alcohol, acids and alkalis, though they become soft when treated with ammonia. They dissolve in chloroform and turpentine and swell up with ether. When heated they melt, and they burn with the characteristic odor of burning rubber.

"From the bark the rubber can very readily be extracted. If the bark is broken in pieces and pounded in a mortar the mass can be roughly separated into two parts, one consisting of the tangled elastic threads with small bits of broken bark adhering to them, the other chiefly of bits of bark containing no doubt smaller pieces of the threads. From both parts chloroform will dissolve out caoutchouc, a larger amount naturally from the portion which consists chiefly of the threads."

Prof. Weiss's quantitative examination showed that the bark of the *Eucommia* contains about 3 per cent. by weight of caoutchouc. "Whether the bark can be made use of commercially," he concluded, "I must leave to those who are more experienced in technical matters."

After the first researches in England some further knowledge of the newly discovered rubber tree was secured in France, where it was successfully grown at the Jardin Colonial. In 1899 M. de Vilmorin, writing in response to a question from Kew, told of the hardiness of the importation: "Two plants of *Eucommia ulmoides* remained uprooted against a wall in our Paris garden during the two last winters and stood uninjured through as low a temperature as 18 or 19 degrees Fahrenheit."

On its native hillsides the tree grows to an average height of about twenty-five feet. According to experience in China and at the Jardin Colonial, Paris, it is propagated more readily from cuttings than from seeds. Dybowski and Fron, who have investigated it at the French experiment station, reported:

"It is not easy to get a quantity of seed and germination seems to be slow and irregular. One sowing produced a single seedling after the lapse of six weeks, a second after five months and others later still. Fortunately cuttings seem to give better results. They will strike root at any season and give vigorous plants."

The two investigators already mentioned say of the secretion: "The product is of a dark brown color with metallic reflections on the surface. Plunged into hot water it becomes soft again, stretches out in flakes like goldbeater's skin, and under pressure will take the impress of metal. In cooling it loses its suppleness and becomes quite hard.

"We have submitted the samples to M. Léauté, an authority on the subject, and he has been so kind as to authorize us to say that he considers it gutta percha of good quality."

Mr. Wilson, speaking of the tree, says:

"One of the most striking discoveries of this trip was a new kind of rubber tree which is hardy. We brought back a quantity of the seed of this tree, and expect that it will grow in this climate. It is hardy, and on cutting away the bark one can see the rubber lying in filaments between the fibers of the wood. The rubber cannot be obtained as in the case of the caoutchouc tree, by tapping the tree. It will not flow. The wood will have to be macerated and the rubber extracted by some mechanical process. Whether it will ever be commercially useful is impossible to say now. The tree is allied to the magnolia."

From all of the above it would seem that the tree produces, not rubber, but a sort of gutta percha. If the gum is high grade, and if, as seems probable, it is adapted for cultivation on the hillsides of New England and New York, it might well be even more valuable than if it did contain rubber.

* * *

Speaking again of the milk weed, it is possible that the small amount of rubber contained in it may some day be utilized. The stalk certainly contains an excellent fiber, and of late it is coming into favor as a food product cooked like asparagus. It has a flavor most delicious, and seems to act like asparagus as a general cleanser of the system.

THE PROPAGATION OF GUAYULE.

IN the opinion of Dr. Frances Ernest Lloyd, quoted in the October issue of THE INDIA RUBBER WORLD, the ultimate and adequate solution of the production of guayule shrub lies in the direction of cultural rather than forestal operations. Illustrating this assertion, the process of cultivation by seeds is described in detail.

The alternative system of propagation by planting has been dealt with in an interesting statement by Professor Mario Calvino, of the Central Agricultural Station, San Jacinto, Mexico.

Seeing that the propagation of guayule (*Parthenium argentatum*) by means of seeds, though apparently the most economical system, had proved more or less unsatisfactory in practice, the Central Agricultural Station of Mexico entrusted the study of the question to the Division of Horticulture. That division made use of a consignment of guayule seed, received from the Secretary of Commerce, to study propagation in that form, with the result that relatively few plants germinated.

While Professor Calvino was making these experiments Señor Salvador Creci, the young agronomical chemist, announced that he had some years ago succeeded in propagating guayule by means of ligneous cuttings. This idea was approved by Professor Calvino, and thereupon measures were taken to effect the propagation of guayule on this principle, seeing that in this way are propagated the *Anthemis* and the *crysanthemum*, which are of the same family as the guayule shrub.

The Central Agricultural Station obtained plants from Coahuila, from which ligneous, seed-bearing and herbaceous cuttings were taken, for planting in boxes in the open air and also in frames beneath glass. The herbaceous and seed-bearing cuttings germinated in ten days, and the ligneous ones within 15 days in the frame and 20 days in the open air.

The cuttings thus matured were afterwards planted in nurseries, being placed 2 inches from each other in rows of 2½ inches apart. They descended from 5 to 8 inches into the soil of the nursery, which was well sifted beforehand and mixed with sand. It is considered desirable to add calcareous earth.

Upon the cuttings being planted, the nurseries should be protected with mats or blankets to prevent the sun from drying or injuring the plants. This protection likewise serves to neutralize

differences of temperature, always hurtful at this period of vegetation. In the day time, when the sun is not strong and the cuttings commence to blossom, they are uncovered in order that their growth may be invigorated by the full daylight. After 30 or 40 days the protective coverings may be finally dispensed with. When the planting has been effected the soil which is around the plants should be covered with a thick layer of leaves or cut grass and the plants with some large leaves or paper.

During the season nearest to the rains (that is to say, in July) the plants can be removed to their definite location, or otherwise it will be necessary to await the rainy season of the following year. Before the definite planting it is better to prepare some months previously the holes in which the roots will be placed. In this way the soil will become more fertile.

When rain is falling daily it keeps the plants watered, but at times when there is no rain the shrubs are watered daily by hand, about a quart of slightly tepid water being sufficient for each one. The layer of foliage or cut grass placed upon the soil prevents the latter from drying too quickly, thus helping the plants to take root.

In conclusion, it is claimed that the system of propagating guayule by cuttings is much more certain than by seeds. But, it is remarked, the advantage of the first-named system depends upon the selection and propagation of the descriptions of guayule richest in rubber. It is known that sugar beets at one time only contained 8 per cent. of sugar, while with present system of selection a yield of 16 to 18 per cent. is obtained.

WHY CUSTOMERS HAVE TO WAIT.

TO THE EDITOR OF THE INDIA RUBBER WORLD:

CUSTOMERS frequently complain of delays in shipments, and the manufacturer is sometimes at a loss to explain satisfactorily the exact cause that makes these delays, that unquestionably do occur. In order that a better understanding may exist, we take this opportunity of calling attention to some of the reasons why some shipments may not be forwarded with the promptness that might be desired.

In the first place, the trade is acquainted with the fact that the demand for special labels and special goods is on the increase. The feeling that the jobber has, that it is wise to have his name identified with the rubber goods he handles, has grown, and the dealer who depends upon the name of a manufacturer of recognized repute to assure the public of the quality of goods he is offering for sale is constantly importuned to buy "the same goods" under the jobber's name, the theory being that when the dealer reorders he will specify the brand, and the order will go to the owner of the brand in preference to others who may be offering the same article under their own brands or under that of the manufacturer. This results in the manufacturer being forced to carry a greater number of special labels, boxes, patches, dies, etc., for various customers than ever before, and on account of the growing assortment it is impossible to carry stock for each individual customer.

The shelves may be full of regular stock, but when these same articles are ordered under special brand the factory is obliged to make up new goods, and it requires time, even when an order can be immediately taken in hand; and a greater delay when, on account of preceding orders, new ones must wait their turn for attention. It is safe to say that the largest part of delays is caused by the specials which have to be made to order.

An outgrowth of these conditions is that nearly every order for special brand goods is marked "Rush." To such an extent has this practice grown that we find ourselves unable to give the preference that rush orders are supposed to have. Our work-rooms are overwhelmed with "rush" tickets, and to heed all such

requests would leave the orders received in the usual course unfilled indefinitely.

So it happens that it is necessary to give precedence to some rush orders, and work others in as best we may, to satisfy so far as possible the demands of our trade. The buyer who fails to make an order "Rush" is deserving of attention and may suffer by the urgency of others who may not actually be in any greater or immediate need. This is neither fair nor satisfactory, but, deplorable as it is, the condition exists. The value of a "Rush" is growing less on account of its too frequent and ill-advised use.

Too frequently a buyer allows his stock to run too low before reordering, and then writes or wires, "All out, rush," etc., and is greatly perturbed by the inability of the manufacturer to give his late order precedence over older ones.

It rests with the manufacturer to decide also just what disposition is best when an order calls for assorted goods, part stock goods ready for delivery from his stock room and part special, which may require from three to four days to that many weeks to complete. If the shipment is split there is the freight or express to consider. Perhaps the order is too small to split into two shipments, and the ready stock is held for completion of special goods and then comes the complaint about delay.

Orders are booked for delivery as soon as possible or for future delivery, as may be designated. No factory can expect to depend for the work tomorrow upon orders received today; they must keep work ahead and plan to keep within reasonable distance of the mark. Let us take for illustration the following:

The factory has the work in the water bottle department laid out for ten days ahead. This does not clean up all orders on the books, but leaves, say, five or six days' work that has accumulated in the busy season, so if no more orders were received in nine days all orders would be made up. An order comes in marked "rush" for a special brand of bottle. This is given preference. It is entered in the morning, goes to the factory and the details of specifications, are looked up and entered on a factory ticket. The stock, if special, is ordered from the compounding department. All this may delay the starting of this rush order for a day. To compound, calender, cut, distribute the various parts to the maker; make, vulcanize, inspect, finish, sun and season, assort, box, wrap, prepare for delivery in shipping department, will under ordinary circumstances take from one to three weeks, according to conditions, size of order and the attending circumstances. In the meantime a hundred or more other orders are coming through, perhaps with a goodly number marked as this one was, "rush."

We know of no actual remedy, but the conditions could be alleviated by careful guarding against unnecessary delays on the part of the manufacturer and a realizing sense on the part of the buyer of the conditions which exist and the desirability of avoiding "rush" orders by anticipating his wants and allowing reasonable time for completion of orders. MANUFACTURER.

JELUTONG RUBBER CONCESSION.—The American vice-consul general at Singapore, Straits Settlements, writes that he has received a letter from an individual who states that he has obtained a concession for the collecting of jelutong rubber over 3,000,000 acres on the east coast of the Malay Peninsula. He is anxious to ship this product to the United States and wishes to receive inquiries from prospective buyers.

Members of the Carriage Builders' National Association, who recently held their annual convention in Atlantic City, were the specially invited guests of President Frank A. Seiberling, of the Goodyear Tire and Rubber Co. at the hangar, where the airship "Akron" is being put in readiness for Mr. Vanniman's trip across the ocean. The carriage men were very much interested in this new form of conveyance.

The Editor's Book Table.

THE WHOLE ART OF RUBBER GROWING. BY W. WICHERLEY, F.R.H.S. Philadelphia: J. B. Lippincott. London: The West Strand Publishing Co., Limited. 1911. [Cloth. 8vo. Pp. 154. Price \$1.50.]

This book is intended as a handbook and guide in the selection and planting of those species of rubber-yielding trees which can be successfully cultivated in countries and climates other than those to which they are native. The book is primarily for the use of planters in the Middle East and Far East. While avoiding as far as possible technicalities, it goes into detail so as to be of practical value to the planter. It treats of the *Hevea Brasiliensis*, its remarkable growth, the preparation of a clearing, the best methods of planting, of weeding and cultivation, and the most successful tapping systems. The book also gives a great deal of information regarding the *Manihot Glaziovii*, and the *Ficus*. Chapters are devoted to *Castilloa*, *Funtumia*, guayule, jelutong and various other rubbers. Some space is devoted to the interesting Soya bean. For its 154 pages it gives a great deal of information and is generously illustrated.

LOS SUCEDANEOS DE LA GOMA ELASTICA Y EL GUAYULE DE Mexico. (Surrogates of Rubber and Mexican Guayule.) By Professor Julius Morpurg. 8vo, paper; 1910; 12 pp. Secretaria de Fomento, Mexico City.

This brief treatise, brought out in German on the occasion of the inauguration of the first "Exposition of Mexican Products" at Trieste in 1908, has been deemed worthy of translation into Spanish and of publication by the Mexican Ministry of Commerce, having appeared in 1910 under its new form.

Seeing that it was written three years ago, due allowance must be made for intervening developments, which, while removing apprehensions as to a contingent scarcity of genuine crude rubber, have likewise enriched the technical literature dealing with rubber and rubber surrogates, and have confirmed Professor Morpurg's assertion that "we now know rubber in the same way as we do lubricants, rosins, gums and other vegetable products used technically."

At the same time he remarks that rubber substitutes in fact represent a falsification rather than a substitution, and that the question of cheap rubber has not been solved by chemical products.

After dealing with the various botanical facts the author remarks that it is scarcely twenty years since attention has been given to seeking rubber in various plants other than those from which it had been hitherto derived. In this connection he refers to the success which has of late years attended investigations as to various exotic plants and notably Guayule. Two samples had been sent to the Trieste Exposition, one of which had been analyzed.

In his concluding words Professor Morpurg remarks that Guayule deserves the most serious consideration, in view of its combining perfectly with rubber, and being fitted for vulcanization, while its resistance is superior to that of substitutes or any other surrogates.

THE COPPER HANDBOOK, A MANUAL OF THE COPPER INDUSTRY OF THE WORLD (Volume 10). Compiled and Published by Horace J. Stephens, Houghton, Mich. [Board covers, 8vo., 1,902 pages.]

This is certainly a voluminous book, as the number of pages given above will indicate; nor has any attempt been made to swell the number of pages by the use of unusually large type or unnecessary leading. It is a book of solid information. Nearly 1,600 of the 1,900 pages are devoted to the description of rubber mines and mining companies in all parts of the world. There are over 8,000 of them so described; some of them of merely historic importance receiving only two or three lines, while the great Anaconda Mine, which yields $\frac{1}{8}$ of all the world's supply of copper occupies twenty-one pages.

To investors in copper stocks this information about mines and mining properties will probably be the most interesting matter in the book—but to other people, the preliminary chapters filling about 250 pages on the general topic of copper, giving its history, its geology, chemistry and mineralogy, the methods of mining, the uses of copper and the general distribution of copper over the world will prove the most interesting. The chapter on geology giving the different scientific theories that account for the presence of metals in the earth is well worth the reading, while the chapter on the uses of copper showing the myriad purposes to which this metal is put, is full of information.

Of course, its chief use is for the conveyance of electricity. In addition to power, light and traction lines, and telegraphs and telephones, copper wire is used to the extent of millions of pounds for minor electrical systems, including messenger calls, fire alarms, burglar alarms for banks and residences. Copper is being used in large quantities constantly in building construction, for roofs, and cornices, and ornamental panels, and for bronze grill work.

The publisher sends this book to any address without advance payment of any sort and subject to a week's inspection. The price when bound in green cloth covers is \$5.00, in library morocco, \$7.50.

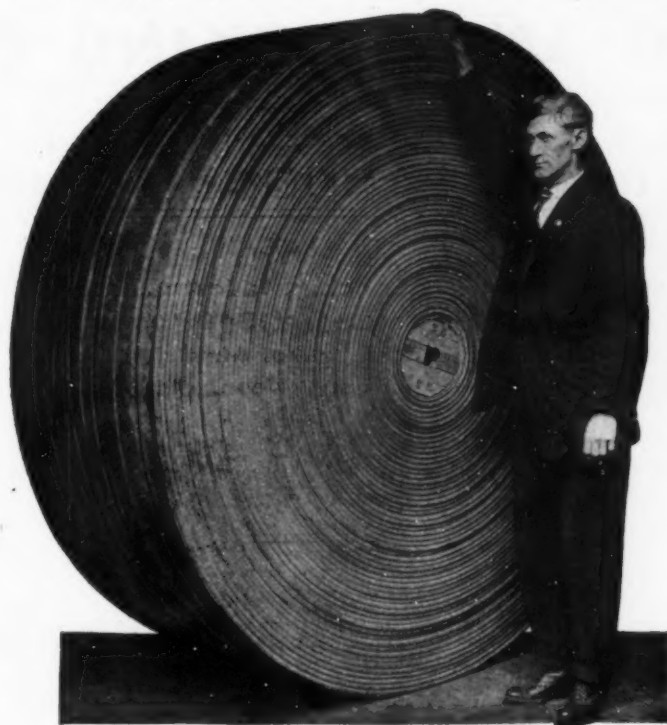
HENDRICKS' COMMERCIAL REGISTER OF THE UNITED STATES for Buyers and Sellers. New York: Samuel E. Hendricks Co., No. 74 Lafayette street. [Board. Large 8vo. Pp. 1442. Price \$10.]

For twenty years the publishers have issued this directory, and it has grown with every year. This year it gives 124 pages of new matter not found in last year's directory, while the entire volume has been revised and made correct up to the date of issue. Some conception of the magnitude of this book may be had from the fact that the index covers 108 pages, with 400 classifications on each page. The total number of classifications is 45,000, giving a complete list of the manufacturers of agricultural, engineering, electrical and mechanical articles and those used in kindred trades and professions.

An important feature of this register is the simplicity of its classifications. All manufacturers are first classified under the general name of the special trade in which they are engaged. They are then subdivided under as many classifications as there is variety in their products. By this system the book is made particularly valuable to purchasers. There are all told 350,000 names and addresses in the book. In addition to names and addresses the book gives much information regarding the firms mentioned and the nature of their products.

CHILTON AERO DIRECTORY CONTAINING CLASSIFIED LISTS of Manufacturers of Air Crafts of All Kinds. Philadelphia: Chilton Co. [Paper. 8vo. Pp. 88 and cover. Price \$1.]

If anyone doubts the interest in this country in aeronautics he has only to look over the 88 pages of this directory to be undeceived. Aeronautics has in reality become not only a good deal of a science but also a very sizeable industry. This directory contains not only lists of manufacturers of all manner of aerial vehicles and of their parts and accessories, but it also includes lists of the aero clubs in this country, giving the names of their officers and members, lists of licensed pilots and aviators, together with the world's aviation records. It is an interesting fact that the manufacturers of aeroplanes proper fill over three pages of the directory, with over thirty names to a page. This is exclusive of manufacturers of parts and accessories. The directory shows about 15 aeronautic schools in different parts of the country.



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The Third International Rubber Exhibition.

THE announcement that the third International Rubber Exposition is to be held in New York instead of London will not be in the nature of a surprise to those who know the organizing manager, Mr. A. Staines Manders. An Australian by birth, he was a resident of the United States some years ago and has ever had a sincere admiration for American enterprise. For some weeks past he has been in New York looking over the ground, and now announces that the exhibition is arranged for the last week in September, 1912, the place being the magnificent new Grand Central Palace.

In an interview given THE INDIA RUBBER WORLD, Mr. Manders defined the scope and arrangement of the exhibition very clearly.

He emphasized the feature that there would be no selling of minor objects which is so apt to accompany great shows; that there would be no side-shows; that a flat price would be charged for space, and that it would not be followed up by the provoking accessory charges that so often annoy exhibitors. The usual catalogue with its mass of advertising will be supplanted by a dignified directory of exhibits, for which no advertising will be solicited. The conference book will not be an advertising excuse—in other words, American exhibitors are not to be harried to the limit of their patience by advertising books and circulars.

Steps have already been taken to secure exhibits of crude rubber from every rubber producing country in the world.

There is also in process of formation, an advisory committee, made up of the most influential manufacturers, chemists, importers, and scientists in any way connected with the trade.

There will be notable loan exhibits, European and American; exhibits of laboratory and factory appliances, etc., etc.

There will be a series of conferences at which essays on various subjects of interest to the trade will be read.

When one considers that the United States not only uses one-half of the world's crude rubber, but manufactures much more than one-half of the world's rubber goods; when one further

considers the very general interest that the press and the people of the country are today evincing in rubber, it would appear that the exhibition was timely. That it can be made broadly informing to every trade and profession, to business organizations and to schools, goes without saying, and Mr. Manders' past record furnishes no reason to doubt his complete grasp of the possibilities as well as his ability to carry his plans through to a successful finish.

The exposition is financed by an American company, the International Exposition Company, Inc., with offices at the new Grand Central Palace, New York. Mr. A. Staines Manders, the organizing manager, has his headquarters there when in the

United States, and when in England leaves a secretary in charge. The directors of the Exposition company are men well versed and successful in exhibition work. They are: Samuel A. Miles, manager National Association Automobile Manufacturers; Richard G. Hollaman, president Eden Musee, American Company; James C. Young, secretary and treasurer, Madison Square Garden; Edward P. V. Ritter, president Merchants and Manufacturers Exchange of New York; Charles E. Spratt, vice-president Merchants and Manufacturers Exchange of New York; J. A. H. Dressel, Madison Square



THE GRAND CENTRAL PALACE, NEW YORK.

Garden, managing director—a board that is certainly equipped to handle expositions successfully.

The Advisory Committee, to which reference has already been made, will be made up of the leaders in rubber thought and accomplishment, chiefly American, and will be similar to the board that had charge of the interesting meetings and conferences held in London. This Advisory Committee is in no way connected with the financial end of the enterprise; nor are the members asked for contributions to any fund. It is purely honorary and advisory, and designed to bring the leaders in the rubber trade together for the purpose of making the exposition complete and thoroughly representative.

Synthetic Possibilities.

(By a Practical Man.)

NOW that synthetic rubber is no longer the iridescent dream of the enthusiast, what will be its effect upon the manufacture of rubber goods when it can be supplied in quantity in the world's markets, and compete with wild, cultivated and reclaimed rubber for prestige?

A careful analysis of the record made by manufactured rubber goods during the past twenty-five years, will establish as a fact that this, the latest "discovery" in the line of rubber research, is unlikely to have any appreciable effect in depreciating the value of shares in rubber plantations, or in lowering the cost of the vast list of articles manufactured from rubber. One reason for this is not far to seek.

Rubber cultivation is like other enterprises of the sort, and experience from one season to another makes clear the fact that scientific methods will result in lowering of costs, with result that plantation rubber will probably be produced at considerably under 20 cents per pound. When it is understood that the better grades of reclaimed rubber cannot now be manufactured at this cost, the synthetic dream will hardly develop the proportions of a nightmare.

It should also be borne in mind that synthetic rubber, while a scientific fact, is not as yet a commercial proposition. Until it takes its place in the arena of practical utilities it can be regarded as an interesting development of man's research, but nothing over which either investor or manufacturer need lose an hour of sleep.

Accepting its evolution or discovery as a fact, it has yet to be demonstrated that it can be produced outside the laboratory of the chemist in commercial quantities, and at a cost to compete with wild rubbers, that for example can be gathered in South America and delivered in London at a net cash per pound of 40 cents or less.

Examination of prices obtained for fine Pará rubber for ten years, 1890-1900, shows the average price to have been about 83 cents per pound, with a low price of 66 cents; for the ten years, 1900-1910, prices averaged \$1.31, made possible by the extraordinary rise in 1910 to \$2.86. The low price for this period was 70 cents. In fact, the cost of fine Pará in the New York market for the years 1888, 1889, 1892, 1893, 1894, and 1902 was 70 cents per pound and under, and the claim has yet to be advanced that rubber was being marketed at a loss. Incidentally a study of this sort reveals the profitable nature of investments in rubber shares, and one no longer wonders at 100 per cent. annual dividends.

When, further, we remember that there was imported into the United States alone for the first six month of this year, not less than 91,000,000 pounds of crude rubbers, it can be readily inferred that additions of synthetic or any other sort of rubber to affect prevailing values of crude would have to be upon an immense scale.

To produce such additional supply even approximately, would involve the expenditure of vast sums for the equipment of factories, and capital for an enterprise of such proportions would not be subscribed by far sighted financiers until they had satisfied themselves of the coincident advantages likely to offset the rapid enhancement in cost of crude material that would have to be used in the manufacture of synthetic rubber, and which would increase its cost of production far beyond the present academic estimates.

The extreme high prices obtainable for crude rubbers during the past two years are not chargeable to the law of supply and demand, but to artificial conditions. If the best wild rubber were

to remain at \$2.75 to \$3.00 per pound for the next decade, then the matter of profits in the manufacture of synthetic would be greatly simplified. But the same grade that sold for \$2.86 per pound in April, 1910, has since then been purchased under \$1.00 per pound. Manipulators may come and go, prices for crude rubber may rise and fall, but the great industry of the manufacture of rubber goods goes ever onward with ever increasing momentum.

The experience of the past two years has been invaluable to the manufacturer. He has developed from experimental, rule-of-thumb compounding, into scientific compounding. He has discovered undreamed of values in rubbers that came to him from places far removed from the favored and famous forests of South America. He has not lost his respect for Pará, but has developed an abiding interest in other sorts. Consequently exploiters of synthetic rubber may count on well-intrenched competition as soon as their product appears on the market.

Synthetic rubber as an admitted scientific fact, has yet to establish its position as a competitor with wild and cultivated rubbers in the matter of quality.

What is its greatest elongation without breaking?

What is its recovery from standard stretch tests?

What are its insulation qualities?

All these and many more questions have yet to be answered, and until they are and synthetic rubber can qualify point by point with fine Pará, there is no danger of rubber becoming a "drug" on the market.

If therefore, it should transpire that synthetic rubber (however valuable a position it may attain as an adjunct to the rubber manufacturing industry) fails to mark up to established standards for "high grade," it stands face to face with an equally perplexing competitor in the form of low grade rubbers from Mexico, South America and Africa; a great host full of bark and sand it is true, but of proven value for many purposes, with low shrinkages, and net costs that are attractive, and likely to prove troublesome to the exploiters of any sort of scientific rubber.

Finally, that branch of the rubber manufacturing industry that redeems or reclaims rubber that has once been used, must be considered in its relation to the possible commercial possibilities of synthetic rubber.

Reclaimed rubber is an item of significant importance in the cost of a very wide range of articles made from rubber. When it is considered that the best grade of "reclaimed" contains 90 per cent of rubber, and sells at prices ranging from 50 cents to 75 cents a pound, it is a factor that must be reckoned with, especially in view of the possibility that the manufacture of synthetic may bring about so great a lowering in the cost of manufactured goods that reclaimers will profit proportionately in the low values of scrap rubber.

It is safe to conclude, however, that the projectors of the new synthetic rubber will not venture to manufacture in commercial quantities without first satisfying themselves that their enterprise will be profitable in proportion to its importance, the risk involved and its permanence. In the meantime we will continue to make the same good goods at the same old stands in constantly increasing quantities, pocket the profits and trust to luck.

SEND for Index (free) to Mr. Pearson's "Crude Rubber and Compounding Ingredients."

A BOOK for everybody interested in tires—"Rubber Tires and All About Them"—this office.

A New Use for Pontianak Resin.

EVER since the extraction of rubber from Pontianak has assumed any commercial importance there have been many attempts to find an outlet for the tons of residual resin that have accumulated. A small market was formed with the manufacturers of roofing papers. There was also an attempt to utilize it in lieu of chicle for chewing gum. It remains for Carleton Ellis, however, of Montclair, New Jersey, to adapt it to a use which would appear to be very large. Under date of August 1, 1911, Mr. Ellis was granted two patents, the first 999,493 covers the waterproofing of concrete with Pontianak resin. His second patent of the same date, 999,708, which is for a paint or priming for concrete, may have very far-reaching results. To begin with, Mr. Ellis is a chemist and an expert on waste resins. He therefore was able to turn the untractable unsaponifiability of Pontianak to good account by producing a paint vehicle which is not attracted by cement alkali. In other words, he gives something so much better and more lasting than linseed oil that its use is assured. His essay on the subject, although addressed to the examiners of the United States Patent Office, is so complete that we quote:

"Concrete made from Portland cement is ordinarily rather porous and lacking in waterproof qualities; also it has a grayish brown tint as usually prepared which, for certain purposes is not desired. The cement used in the concrete contains a considerable amount of alkali in the form of free lime, or lime in loose combination; also potash or soda in basic form. In addition, bodies of a more or less water soluble nature are present and these compounds, under the action of moisture, tend to migrate from the interior of the concrete mass and appear on the surface thereof as a white efflorescence known by the artisan as 'salt-peter' or lime stains. These are very unsightly and often greatly injure the appearance of buildings, such as dwelling houses constructed of solid or monolithic concrete and stucco. Moreover, the surface of concrete often undergoes a slight disintegration, known as checking, which renders the surface unsightly, so for these and other reasons, concrete surfaces frequently need to be painted.

"The basis of ordinary paint, linseed oil, is not adapted for use in the painting of concrete. Linseed oil, being a readily saponifiable oil, is affected by the alkalis of the cement and perishes rather rapidly. With the idea of overcoming these difficulties, proposals have been made to treat the surface of the concrete, prior to painting, with an acid, or neutralizing wash, such as aqueous solutions of hydrochloric and sulfuric acids, zinc sulfate, ammonium carbonate and the like. In addition to the time required to apply such a wash, the work has to be delayed in order to permit the water to dry out before the paint is applied and the surface of the cement, because of such drastic acid treatment, is oftentimes more or less disintegrated, the bonding of the cement is in a measure destroyed, especially at the surface, leading to scaling and checking. This action is enhanced by the action of frost in winter and may lead to a very great deterioration of the painted surface. Then too, there is always danger that alkalis from the interior of the cement mass may find their way to the surface of the mass and affect the paint coating by saponifying action; for the neutralizing action of the acid wash is only superficial at best, leaving the interior of the cement with its full quota of unneutralized alkali. For this and other reasons linseed oil has not found favor in the painting of concrete.

"Solutions of ordinary varnish gums, such as Manila or kauri copal in turpentine and other solvents have also been suggested, but these also are saponifiable to a very considerable degree and are open in a large measure to the same objections noted in the case of linseed oil.

"My invention has to do with paint vehicles which essentially

are substantially free from binding materials affected by the alkalis of cement, and comprises the use of resins, or resinous materials extracted from rubber gums and in particular the rubber gum known as jelutong.

"Different qualities of jelutong are known in the trade, according to the source from which they are derived, as Palembang (Sumatra), Pontianak (Borneo), Sarawak and the like. Commercial jelutong is obtained by coagulating the latex derived from the jelutong tree. Commercial jelutong contains roughly about 70 per cent. water, and 30 per cent. solid material, the latter consisting of about one-third rubber and two-thirds resin, so that for about each pound of rubber recovered, about two pounds of resin are obtained. The resin has found but few uses, and has constituted a waste, or by-product of considerable magnitude.

"The process of deresination as now practiced by the aid of solvents, leaves the resin in the form of a mass of white particles, or friable lumps, usually containing some moisture and the method of treatment for rendering this resin suitable as a basis for concrete paint vehicles, or oils, will shortly be described.

"Jelutong resin, as for example, Pontianak, is practically unsaponifiable, as I have indicated in U. S. Letters Patent No. 900,687 of October 6, 1908. While the resin after melting, is similar in appearance to ordinary colophonium, it is widely different chemically and because of this, unfit for the many uses to which colophonium is adapted. Thus, because of its unsaponifiability, Pontianak rubber resin cannot be used, as is rosin, in the manufacture of soaps, etc.

"Chute has called attention to the difficulty of utilizing Pontianak rubber resin (INDIA RUBBER WORLD, July 1, 1909), and has given some data as to the properties of this resin. His data as to the solutions of this resin coincide to a considerable extent with my own observations, except that no mention has been made by Chute of the instability of many of the solutions of resin. When first prepared, clear solutions are readily obtained, as, for example, by melting one part of Pontianak rubber resin and thinning with two parts of petroleum naphtha. Such a clear solution is, however, supersaturated and on keeping for a few weeks or months or even longer, separation of the less soluble portion occurs spontaneously and the former clear solution becomes largely a grayish paste, or solid mass. Most common solvents act in this way as the following tabulation indicates: For example, a clear liquid mixture made from equal parts of Pontianak resin and pine oil, on standing for a considerable period becomes solid; with one part resin and two parts pine oil, it is about one-half solid; with one part resin and one part each of pine oil and solvent naphtha, nearly solid. Nearly solid products are produced on standing by mixing two parts of Pontianak resin with one part each of pine oil and heavy benzine, two parts of the resin to one part pine oil and two parts of heavy benzine, also two parts resin to two parts each of these solvents give like results. Light benzine (varnish maker's benzine), with pine oil in varying proportions, acts in the same way. Equal parts of the resin and spirits of turpentine solidify as do mixtures composed of three and four parts of turpentine to two parts of resin. Mixtures of turpentine, with light and heavy benzine behave in a similar manner. Mixtures, of pine oil, solvent naphtha and heavy benzine are but little better as solvents. Good quality solvent naphtha alone, is somewhat better. However, two parts of the resin, with one and one-half, two and two and one-half parts of ordinary crude solvent naphtha solidify completely, three parts of solvent naphtha is nearly solid, while three and one-half and four parts of the solvent yield three-quarters solid and one-quarter liquid. Two parts resin to three

parts varnish maker's benzin is two-thirds solid, and about four parts of the benzin, gives about one-half solid material. Benzol has better solvent properties. With two parts of Pontianak resin to four or five parts of benzol the solutions remain clear. Equal parts of resin and benzol, on the other hand, become solid. Mixtures of solvent naphtha and varnish maker's benzin often have a similar solidifying action. Mixtures of benzol and benzin with the resin are somewhat unstable. Russian turpentine has better solvent properties than ordinary spirits of turpentine, but in the course of time, solidification sets in with solutions of moderate concentration. Guayule resin is permanently soluble in the solutions mentioned and seems to exert some influence in maintaining the Pontianak resin in solution.

"The foregoing mixtures, which segregate solid material do not dry properly, especially when exposed in moderately thick films. If a very thin film is allowed to dry, say on a glass plate, it may become hard, but is usually cloudy, or 'frosted.' Thicker films usually behave differently as solidification or separation of the material held in solution in a supersaturated condition is very liable to occur, forming a pasty sticky mass which dries very slowly and apparently never attains any very great degree of hardness.

"There is great uncertainty respecting the permanency of such solutions in storage. The solidification may occur in a few days or the solutions may retain their mobility and clarity for a long time to finally coagulate and become worthless as finish coating material. The various factors which enter into the phenomena of spontaneous coagulation have not as yet been fully determined by me and I content myself for the present simply with calling attention to these observations.

"In the preparation of finish coatings, such as paint oils, varnishes and the like, concentrated solutions of resin are often required. For example, making rosin varnish known as the 'gloss oil' type, five or six parts of ordinary rosin are used to four or five parts of benzin. With Pontianak rubber resin, ordinarily such concentrations would be impossible to secure.

"In the manufacture of varnish from hard resins, it is quite customary to heat such resins to a temperature of 500 to 600 degrees F. in order to render them more suitable for combination with oils, etc. But in the case of Pontianak resin, it has been supposed that a temperature of 400 degrees could not be exceeded, owing to the formation of acetic acids and other supposedly injurious bodies. I have found, however, that this is not the case, but that it is entirely feasible to heat Pontianak resin to a temperature of even 600 degrees, or higher, thereby producing a solution which is readily soluble in ordinary volatile thinners, customarily used in varnish manufacture. In order to obtain such a high degree of solubility, I find that by heating the resin for about an hour at about 600-620 degrees F. gives a loss in weight of about 20 per cent. and suffices to render the product readily soluble in thinning mediums, such as benzol benzin and the like. In fact, by such treatment it becomes possible to make a solution in say benzol for example, of just as high a concentration as that obtained in ordinary rosin gloss oil. This is a very important consideration, because a concentrated solution is ordinarily required in coating materials and the dilute mixtures obtained by the solutions of the raw Pontianak resin in volatile thinners do not give for many purposes the requisite degree of concentration. Another important advantage is that such concentrated solutions derived from the employment of resin heated to 600 degrees or thereabout as above indicated, is the very noticeable mobility of these solutions. Ordinary gloss oil, containing 50 per cent. or 60 per cent. of rosin is usually relatively thick and rather viscous, so that when worked out under the brush, considerable drag is experienced and brush marks often appear. In the present case, it is possible to secure relatively thin solutions of unusually high concentration, which work with very great freedom under the brush. While ordinary gloss oil is destroyed in a short time by the action of

the sun and rain, the Pontianak resin, treated in this manner, shows an unusual degree of resistance to atmospheric influence.

"Solutions of the resins, suitable as paint vehicles, may be made in the following way: 125 lbs. of Pontianak resin is heated for one hour at about 600 degrees F., giving a loss of about 25 lbs. The molten resin is cooled to about 300 degrees F. and thinned with 90 or 100 lbs. of benzol. Or a mixture of equal parts of benzol and benzin may be used for thinning, likewise other common solvents, such as turpentine, wood turpentine, texene, solvent naphtha, toluol and the like may be employed, it being possible even with solvents, such as texene, which is not as powerful in its solvent properties as solvent naphtha or benzol, for example, to secure solutions of fairly high concentration. The solutions made in this way may, if desired, be incorporated with drying oils and driers, including, fish, linseed, china wood, corn, and soya bean oils. Also manganese and lead oleate and linoleate and guayule resin may be incorporated, the latter especially if a very high gloss is desired.

"Instead of heating at 600 degrees for one hour, the resin may be heated at a somewhat lower temperature for a longer period, as for example, at 550 degrees F. for two hours or 500 degrees for four hours. If, however, the resin is not heated above 400 degrees F. the desired degree of solubility is not secured, nor the desirable properties of mobility and free operation under the brush. The heat treatment may be somewhat shortened by blowing air through the resin, or even by treatment with superheated steam, or inert gases, which tend to accelerate the removal of the undesirable and insoluble constituents, or causes changes in these which brings about the desired properties above mentioned.

"When run at a temperature of 600 degrees or higher, the resulting solution is somewhat dark in color, and this may be bleached, if desired, by filtration through fullers' earth or bone black, or by treatment with chemical bleaching agents, such as chlorin and its compounds having bleaching properties, sodium peroxid, ozone and the like.

"Owing to the fact that at temperatures above 400 degrees deep seated changes take place in the resin, rendering it a compound seemingly having almost entirely different properties, it would be expected that organic acids would develop which would give the composition a marked saponification equivalent. I find, however, that this is not the case, although if the material is heated at 500 degrees or 600 degrees F. with hydrated lime for a long period, a small quantity of the lime is taken up by the resin apparently, resulting in a product which is slightly harder than the unlimed resin. The changes which take place are, however, so far as can be judged, those of polymerization and depolymerization, so that the very desirable quality of unsaponifiability may be caused to remain substantially unchanged.

"The treatment of the resin at high temperature may take place if desired at reduced atmospheric pressure, the temperature and length of heat treatment under such circumstances, depending upon the amount of reduction of atmospheric pressure prevailing.

The oil secured, for example, by heating the resin at 60 degrees F. for one hour under ordinary atmospheric pressure through thinning with a mixture of equal parts of benzol and benzin after the heat treatment, makes a paint oil or vehicle which may be used as a basis for pigments and colors of all descriptions, and in itself yields a paint oil of surprising durability. Such a product mixed with say soya bean oil in the proportion of two parts of the resin solution to one part of the oil and the addition of a small amount of Japan drier, yields a very useful paint oil, and as stated, other drying oils may be used if desired, wood oil, however, being open to the objection that it tends to oxidize more or less in such solutions, when standing in containers, especially partly filled barrels, etc., and gelatinization brought about by such changes, makes it not as useful as certain other oils mentioned, which are free from this objection, as for example linseed oil and fish oil.

"In applying this composition to concrete, for which purpose it

serves as an excellent paint on account of its substantial unsaponifiability, I prefer to not introduce any drying oil, but use the simple solution of run resin. There is no objection, however, to the employment of pigment ground in a drying oil, as the small percentage of saponifiable oil introduced in this manner is not detrimental, because when applied to the concrete this oil is so largely surrounded and embedded, as it were, in unsaponifiable material, that the alkalis of cement do not affect it in the usual way. When a flattening effect is desired on the concrete work for example, the addition to the oil of the aluminum soap of Chinese wood oil, containing aluminum eleomargarate, may be used to advantage in an amount of 5 per cent. or 10 per cent., and if desired, 2 per cent. or 3 per cent., for example, of ceresin wax may be introduced.

"The resin run at 600 degrees F., more or less, as above described, may be mixed with a quantity of the raw resin and a solution made of this which affords an excellent waterproofing medium for porous stone, brick and concrete, and is usually of lighter color than the solutions run of resin alone. Furthermore the presence of the run resin seems to lend stability to the raw resin in solution rendering the latter less liable to separate when exposed to low temperatures. For such waterproofing applications, a solution of raw resin, one part in two parts of benzol may be mixed with a solution of equal parts of the run resin and benzol. Three volumes of the raw resin solution to one volume of the run resin solution is a very satisfactory proportion. Or the composition may be made by heating 125 lbs. jelutong resin for one hour at 610 degrees F., adding 200 lbs. more resin and when this is melted, 75 gal. to 100 gal. of benzol, or a mixture of benzol and benzin are introduced."

INDIA RUBBER GOODS IN COMMERCE.

OFFICIAL statement of values of exports of manufactures of India-rubber and gutta-percha from the United States for the month of August, 1911, and for the first eight months of five calendar years:

MONTHS.	Belting Packing and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
August, 1911	\$191,637	\$247,953	\$653,213	\$1,092,803
January-July	1,290,415	927,644	4,162,495	6,380,554
Total, 1911	\$1,482,052	\$1,175,597	\$4,815,708	\$7,473,357
Total, 1910	1,431,382	1,347,749	3,798,848	6,577,979
Total, 1909	1,164,699	872,074	2,678,534	4,715,307
Total, 1908	813,383	927,084	2,371,374	4,111,841
Total, 1907	920,715	908,440	2,702,777	4,531,932

The above heading "All Other Rubber," for the month of August, 1911, and for the first eight months of the current year, includes the following details relating to Tires:

MONTHS.	For Automobiles.	All Other.	TOTAL.
August, 1911 .....values	\$251,262	\$58,615	\$309,877
January-July	1,464,060	337,130	1,801,190
Total, 1911	\$1,715,322	\$395,745	\$2,111,067

NEW LASTS IN RUBBER FOOTWEAR.

The United States Rubber Co. has just distributed a series of ten different eight-page folders for ten of its different brands, the folders being entitled "Descriptions and Illustrations of Styles," made respectively by the American Rubber Co., The Joseph Banigan Rubber Co., Boston Rubber Shoe Co., L. Candee & Co., Goodyear's India Rubber Glove Manufacturing Co., Goodyear's Metallic Rubber Shoe Co., Looming Rubber Co., Malden Rubber Shoe Co., Meyer Rubber Co., and the Woonsocket Rubber Co. These folders, which are 4 x 8 inches in size, illustrate about a dozen different lasts, giving side views and sole views. Most of the illustrations shown are of sandals, croquets and the high-vamp storm rubber; though some arctics, clogs and foot-

holds are shown. These folders are intended chiefly to inform the trade of new lasts designed since the last catalogues were issued. There is sufficient uniformity in the character of the goods displayed in the different folders to show that in a general way the new lasts have the high nob toe generally known as the "Rino" toe and the high heel in both men's and women's shoes.

The four illustrations given herewith show the side view and the sole view of the men's "Rino" and the women's "Elsie"



SIDE AND SOLE VIEW OF THE WOMEN'S ELSIE LAST.

in the Glove brand, and sufficiently illustrate the general nature of the goods described in these folders. The "Rino" last is made for the men's broad high-toe and high-heel shoe, generally known as the "Pug last" in leather shoes. The "Elsie" last has



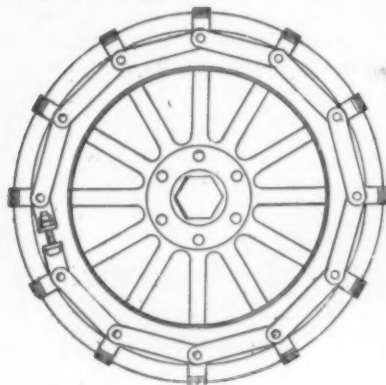
SIDE AND SOLE VIEW OF THE MEN'S RINO LAST.

an extremely high heel and toe to fit the ultra fashionable leather creation usually known as the "Stage" style. The "Rino" toe is a model for which there is at present the greatest demand as the leather shoes affected by men, especially in the west and northwest, are made with high nob toe and high heel. The "Elsie" last has about the same characteristics in the women's line as the "Rino" in the men's line. The demand for this model is also very general.

SEND for Index (free) to Mr. Pearson's "Crude Rubber and Compounding Ingredients."

NON-SKID FOR SOLID TIRES.

THE solid tire, particularly on heavy road trucks, is just as likely to skid as the pneumatic, and oftentimes with disastrous results. Quite a variety of non-skidding devices have



THE TAYLOR TRUCK TIRE GRIP.

been brought out in Europe, particularly in Germany. For heavy non-skid devices applicable both to light and heavy motor trucks, one of the first to appear was the Saurer, which is used in connection with twin tires. It is exceedingly simple, a chain passing around in the groove between the tires, and carrying on the alternate links trans-

verse steel bars which have ridged outer faces. The undersides, however, that come in contact with the tire are smooth and flat. The chain can be applied easily and quickly, and it is said, does not in any way injure the tire.

Another type, this time the invention of an American, consists of flat strips of iron bent over the tire and secured by anchor rings. This is practically a flat chain made up of short links. This non-skid hugs the tire very closely, and while it is flexible and easily applied does not slip, nor does it cut into the tire when in use. It is the invention of Leonard B. Gaylor, Stamford, Connecticut.

There are many other devices, such as, for example, the lion grip, of which there are three sections that attach at equal distance around the periphery of the wheel and held in place by bolts. There is also the drag-on non-skid device which is not dissimilar to that furnished by the Saurer Company.

The great rubber manufacturers who go largely into solid tires are also producing special treads that are being supplied to a considerable degree.

CRUDE RUBBER AND BUFFALO SKINS.—A report from an American consular officer in Spain states that he has received a letter from a local business man requesting the names of American exporters or dealers in crude rubber for use in manufacturing rubber goods. He desires to import this article, and is also in the market for buffalo skins. Correspondence should be in Spanish.

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

INTERESTING FACTS ABOUT TIRES.

"THE Automobile" recently sent out a circular to the tire manufacturers asking 26 different questions. Here are some of the more important of them, together with the answers given by the B. F. Goodrich Company, and others:

The question, "What is the proportion by weight of rubber in tires?" is answered by the statement that it is 75 per cent. "The proportion by weight of cotton fabric" is given as 25 per cent. "What is the effect of speed rather than weight on tire life?" is answered as follows: "Excessive speed undoubtedly destroys more tires than excessive weight; that is, we believe that continuous high speed is more of a detriment to tire life than large weights carried at a very slow speed." Another manufacturer replies that if the tire is properly inflated it suffers more from speed than from weight, but if it is not properly inflated, the weight does rather more injury than the speed. "What is the greatest abuse to which tires are being subjected at the present time," is unanimously answered by most of the manufacturers as being lack of proper inflation.

"What is the effect of grease on floors on tire life?" brings the reply, "Bound to rot the tire." There is a unanimity among manufacturers on that point also. They seem to agree likewise as to the affect of mud and water on tires, namely, that mud and water do not seriously affect the tires, and that they last longer in a moist atmosphere than in a very dry one. Answers to the question "What is the effect of heat and cold on tire life?" show that there is very little difference of opinion in that matter. Heat tends to soften the rubber and is more injurious than cold, except extreme cold, which hardens the rubber and tends to make it brittle. There seems also to be but one opinion as to the extent of rim cutting, namely, that it is growing less and less, and is no longer a feature of any great importance.

DOES IT PAY TO REPAIR TIRES?

WHETHER it pays to repair tires is a question that must be answered in each individual case. New tires with slight injuries certainly are worth repairing—badly worn tires with severe injuries certainly are not. Affording some light on this subject a table is given below showing the charges of one of the repair garages in Greater New York.

AUTOMOBILE TIRES AND TUBES REPAIRED AND VULCANIZED.

Size of Shoe.	Re-Treading	Size of Shoe.	Re-Treading.
28 x 3	\$9.50	32 x 4	\$14.75
30 x 3	10.25	34 x 4	15.75
28 x 3½	11.25	36 x 4	16.75
30 x 3½	12.25	34 x 4½	18.75
32 x 3½	13.00	36 x 4½	20.00
30 x 4	14.00	34 x 5	21.00
		36 x 5	22.75

SECTION REPAIRS.

Two to Six Inches.

2½-inch tire.....	\$2.50	4-inch tire.....	\$4.00
3 " "	3.00	4½ " "	4.75
3½ " "	3.50	5 " "	6.75

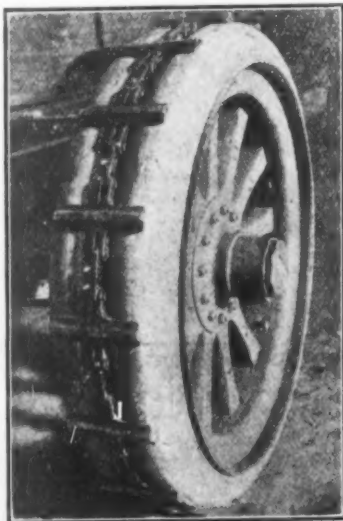
When the repairs are over six inches, add the following prices to the above:

For 2½-inch tires.....	\$.50 to \$1.25
" 3 " " .....	.50 to 2.00
" 3½ " " .....	.75 to 2.75
" 4 " "	1.00 to 4.00
" 4½ " "	1.00 to 4.50
" 5 " "	1.25 to 5.50

Inner tube punctures from 35c. up.

Valve bases, 75c.

New valve, American, 90c. to \$1.10, according to size.



GERMAN NON-SKID BAND FOR SOLID RUBBER TIRES.

MORE ABOUT EXCHANGE LISTING.

TO THE EDITOR OF THE INDIA RUBBER WORLD: In your September number you had a couple of charts showing the fluctuation of wool and cotton, and the wool chart showed the steadier line. Now, these charts, as a rule, are misleading unless one happens to be familiar with conditions governing the various articles. As you know, we happened to have an abnormally short crop of cotton, along with a boom period, while the production of wool happened to remain fairly steady covering this particular period.

I enclose chart showing range of values of oleo stearine in New York and prime steam lard in Chicago from January 1, 1905, to date. The chart shows the high values on both articles, and both are brought right up to the end of last week, showing the market at the finish at Saturday's figures. You will note that the oleo stearine has been subject to wider fluctuations all the way through. Both articles started at about the same price in January, 1905, and oleo stearine reached the high of 19 cents, while the high on lard was 14.60 cents. This chart shows, what I have maintained, that an article without an official market is subject to wider fluctuation than one with the benefit of an open market.

Of course, the general public knows very little, practically nothing, about stearine or its range of values, while any one who follows speculative markets at all will be apt to be familiar with the fluctuations in lard. The general newspapers, of course, give the official markets and comment on them, while the chances are that no one outside of the business knows or cares anything about the fluctuation of oleo stearine.

My sketch is a little crude, as I had to do it very hurriedly, but you can rely on its being correct. The lard prices are taken from the official records of the Chicago Board of Trade. The oleo stearine prices are taken from private records here, as we have no official records.

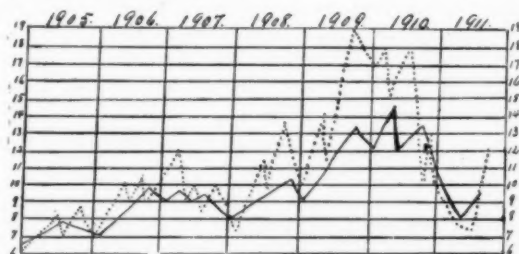


CHART SHOWING FLUCTUATIONS OF LARD AND OLEO STEARINE.
Solid Line Indicates Lard.
Dotted Line Indicates Oleo Stearine.

I send also chart showing fluctuation in short rib sides on the Chicago Board of Trade, with an open official future trad-

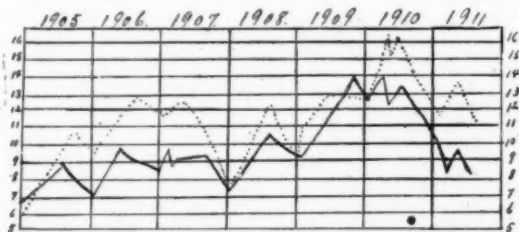


CHART SHOWING FLUCTUATIONS OF SHORT RIB SIDES AND HAMS.
Solid Line Indicates Short Rib Sides.
Dotted Line Indicates Hams.

ing market; also S. P. hams, without an official market. Both are the product of the hog, and, of course, there are two sides and two hams to every hog and no more. I have taken just

the high of each month, beginning January, 1905. The chart was compiled from the official records of the Board of Trade, Chicago, and so far as comparisons go I cannot think of a better or fairer one between commodities, one with and the other without an official market. The charts speak for themselves. Yours very truly,

ARTHUR DYER.

FROM AN ENGLISH INVENTOR.

TO THE EDITOR OF THE INDIA RUBBER WORLD: I have a number of valuable inventions in connection with india-rubber that I should like to bring to the attention of manufacturers. For example, my patent for devulcanizing scrap rubber is an improvement in machinery, whereby I propose to devulcanize in fourteen to sixteen hours. I place rubber in pan, and after fourteen hours steam is shut off and ingredients which have been used for destroying the fabric are taken away. Then all impurities are washed away, while the rubber remains in the pan, so that neither solution nor impurities go into the sheeted stock. I save 35 per cent. in ingredients, 25 per cent. in steam, 50 per cent. in labor. The pan is arranged so that it fills and empties by an automatic arrangement. During its working hours, at each revolution, the condensed water from the jacket is let out by self-acting arrangement, so that no one is needed to give attention while in operation.

Another invention for this work is the cleaning and purifying of sheeted stock, taking out metal, brass and produce, in the same time, over three times more stock than the best forcing machine made.

Again, an invention for taking beads from motor tires.

And one for making substitute by machinery.

I have brought out a number of inventions suitable for all branches of the rubber-heel trade.

Making moulds by machinery, according to the method at present employed in England, I can save 90 per cent.

Machinery for punching from sheet rubber, the dials ready for moulds.

A patent device for buffing all sizes of heels.

An apparatus for preparing crude rubber, washing away all impurities. The steam does not come in contact with the material, which is better for sheeting by this method, saving about 7½ per cent. over any preparatory method I have yet seen.

An invention for lifting and conveying tire moulds in and out of vulcanizing pan, which is needed in every rubber works where tires are made.

Hoping that these details will enable you to arrange an article for your journal which will prove interesting to some person or persons.

CHAS. BLAIR.

Heaton Morris, Stockport, England.

CANADIAN IMPORTS OF CYCLES AND MOTORS.

THE following statistics, for the three months April-June, for three years, are supplied by the Canadian department of trades and commerce:

BICYCLES.			
	1909.	1910.	1911.
From Great Britain.....	\$10,325	\$38,927	\$59,639
From United States.....	12,921	19,480	27,817
From Other Countries.....	.....	43	.....
Total	\$23,246	\$58,450	\$87,456

AUTOMOBILES.			
	1909.	1910.	1911.
From Great Britain	\$35,372	\$65,406	\$111,032
From United States.....	412,317	1,273,057	2,080,592
From France	35,495	35,473	13,280
From Other Countries.....	1,029	5,451	.....
Total	\$484,213	\$1,379,387	\$2,204,904

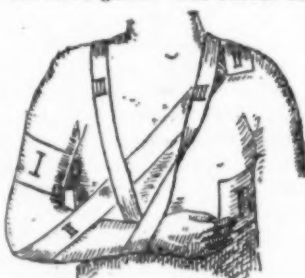
THE USE OF RUBBER PLASTER BANDAGES.

THE old sticking plaster used by surgeons 30 years ago, and still popular as a household remedy when the children cut their fingers, has been very largely supplanted in surgical work by india-rubber adhesive plaster.

The making of adhesive plasters of india-rubber began in the United States about 30 years ago. Soon after—or to be

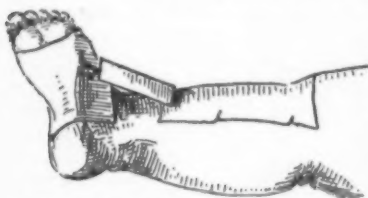


more explicit, in 1884 the manufacture of rubber plasters was taken up at the Helfenberg Chemical Works in Germany, where it has continued to the present time and where these plasters are constructed in a very careful and scientific way. The india-rubber adhesive plasters for the bandaging of wounds are now used quite extensively in surgical work, where the wounds to be covered are no longer subject to ulceration. The plaster is never applied solely by itself, for the wound is first covered with a small piece of sterilized gauze. The rubber being air-tight and water-tight, makes it possible to form a bandage protecting the wound from outside infection. The rubber bandage has these advantages among others, that it takes up only a little space, and only slightly interferes with the use of the limb. For these reasons it is very frequently used as a finger bandage, where some strips are laid lengthwise across the top of the finger, and then covered obliquely by other strips as shown in the accompanying cut.



No. 2. BANDAGES FOR BROKEN COLLAR BONE.

The use of adhesive plasters for the purpose of fixing bones and joints in certain positions has become general. The accompanying cut, No. 2, shows the accepted form of bandage in cases of fracture of the collar bone. Strip No. 1, is designed to obviate the forward dislocation of the shoulder. Strip No. 2 serves to prevent the collapse of the shoulder. The middle part of this strip is placed under the elbow of the arm on the injured side, and its



No. 3. BANDAGE FOR CLUB FOOT.

two ends are brought together on the uninjured shoulder. Strip No. 3 prevents the arm from falling inward. In fracture of the ribs a broad strip of rubber plaster is applied from the side to the breast-bone over the entire place. The rubber bandages serve an excellent purpose in cases of distension and contraction of the stomach, as well as acute cases of stomach inflammation.

The rubber bandage is also exceedingly useful as a preventative of ruptures of the muscles where such a tendency exists. By its use, workmen whose occupation exposes them to extreme physical strain are saved from the effect of this great strain. As compared with abdominal belts rubber plaster bandages have the advantage of being felt very little when worn.

The rubber bandage is of great service in the treatment of club-foot, because it can be applied within a few days after the birth of the child, and without injury to its general health. At this age the use of the bandage is very effective, because the formation of the bones of the foot has not as yet made

much progress, and a moderate pull is sufficient to accomplish the desired result.

In addition to the instances cited above there are scores of others in which the rubber plaster bandage is of utmost importance and value in assisting surgeons in their work.

RUBBER MUSCLES IN INFANTILE PARALYSIS.

FOR a long time many of the leading doctors in this country have devoted themselves to the problem of discovering the nature and cause of infantile paralysis, and the further problem of finding some cure for it. It is now believed, after very careful researches, that it is caused by a germ which enters the system through the nose; and while they have not yet discovered a cure for this terrible and rapidly increasing disease, they have discovered sundry means of checking its progress and alleviating its severity.

The latest remedial agency has been discovered by a Buffalo doctor, and consists of supplying the patient with rubber muscles to assist the affected muscles in doing their proper work, and in preventing the limbs from becoming deformed. These rubber muscles consist of strips cut from a rubber dam, the strips being about an inch in width, in some cases a little wider, according to the location for which they are intended, and being in length from four or five to eight inches. The ends of these strips are fastened to the patient by pieces of adhesive plaster, that are first very firmly attached to the rubber, and then extended four or five inches over the skin so that they will hold firmly.

The strips of rubber, which the doctors call "rubber muscles," are used over various joints—the knee, the ankle, the wrist, the elbow and shoulder. They extend about the same length as the particular muscle they are intended to relieve and assist, one end of the strip being fastened over the origin of the muscle, the other over the insertion. The claim made by the inventor of this treatment is, that the rubber muscles stimulate the normal muscular activity and act as a constant force. In this way the lost power is temporarily supplied until the muscles that are paralyzed or affected have recovered. The use of these rubber muscles does not interfere with any other prescribed treatment, such as passive motion, massage, or electrical application, nor does it interfere with clothing or bathing, and the treatment is not only very simple but continuous. It is not intended to be used in advanced cases; but employed before the paralysis has reached an advanced stage of development, this treatment has been found very effective.

RUBBER MILLS VS. GYMNASIUMS.

If young college aspirants for athletic honors were advised to go to work in a rubber mill instead of spending several hours a day in the college gymnasium, they would probably scorn the advice; but it seems that some departments of rubber mill work have proved good training for athletic success. A member of the Diamond Rubber Company's staff says: "At present there are several well-known athletes, wrestlers and boxers working for the Diamond Company; they say it causes them to feel as 'fit' as when training in a gymnasium." These particular athletes, however, work in the tire making department, where there is a constant demand for a great deal of muscular expenditure. Given plenty of fresh air and properly regulated temperature, there is really no reason why making tires should not develop the muscles quite as well as swinging on parallel bars and pulling weights.

A BOOK for everybody interested in tires—"Rubber Tires and All About Them"—this office.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED SEPTEMBER 5, 1911.

- N**O. 1,002,210. Nozzle. G. A. Anderson, Kansas City, Kan.
 1,002,214. Pneumatic tire. A. Bernier, Providence, R. I.
 1,002,246. Continuous process of making lead and apparatus therefor. C. Ellis, Montclair, assignor to Ellis-Foster Co.—both of New Jersey.
 1,002,253. Hot water bag heater. T. E. Fogalsang and Bertha McCutcheon, assignors to J. A. Moross—both of San Francisco, Cal.
 1,002,264. Hose coupling. J. C. Gribben, Lakewood, Ohio.
 1,002,316. Shoe form. W. C. Richardson, Lynn, Mass.
 1,002,362. Mop wringer. H. F. Beers, assignor of one-fifth to J. B. Faulke, one-fifth to J. Seim, and one-fifth to M. M. Marsh—all of New York.
 1,002,364. Teething device. J. S. Bridges, Chicago, Ill.
 1,002,380. Process of making white lead. E. Eustim, assignor to Eustim Lead Co.—both of St. Louis, Mo.
 1,002,426. Calf feeder. J. Moore, Winnipeg, Manitoba, Canada.
 1,002,448. Resilient connection. J. K. Putnam, Lawrenceville, Ill.
 1,002,468. Massaging device for the gums. W. F. Strangman, Salem, Mass.
 1,002,542. Hat pin guard. C. D. Reeves, Schenectady, N. Y.
 1,002,582. Vehicle wheel. B. W. Hammond, Richmond, Cal., assignor to Puncture Proof Tire Co., of Arizona.
 1,002,644. Manufacture of rubber hose. H. Z. Cobb, Winchester, Mass., assignor to Revere Rubber Co., Boston, Mass.
 1,002,654. Wheel tire. F. Dowd, assignor of one-half to H. H. Dowd—both of Cleveland, Ohio.
 1,002,667. Apparatus for the manufacture of rubber articles from old or waste rubber. T. Gare, New Brighton, England.
 1,002,686. Vacuum bottle casing. S. W. Heaton, Philadelphia, Pa.
 1,002,723. Attaching means for rubbers. S. J. McCann, Chicago, Ill.
 1,002,773. Form for producing artificial tooth crowns. E. R. Stevenson, Oakland, Oregon.

ISSUED SEPTEMBER 12, 1911.

- 1,002,873. Automobile wheel. A. Salter, assignor of one-half to M. Ryan—both of Sawtelle, Cal.
 1,002,929. Washing machine. F. Pohlmann, assignor to the firm of Hydorion Internat Wascherei-Maschinen-Gesellschaft—both of Zurich, Switzerland.
 1,003,002. Tire patching device. G. J. Martel, Chicago, Ill.
 1,003,003. Tire patching device. G. J. Martel, Chicago, Ill.
 1,003,004. Tire patching device. G. J. Martel, Chicago, Ill.
 1,003,030. Tire applying tool. T. W. Burt, Hempstead, N. Y.
 1,003,071. Tire. E. A. Sundvall, Stockholm, Wis.
 1,003,077. Foot protector. J. C. Watson, Kellerman, Ala.
 1,003,159. Fountain brush. S. Rivesville, W. Virginia, assignor of two-thirds to R. W. Hall and J. E. Shinn, Fairmont, W. Va.
 1,003,238. Pneumatic wheel. S. P. Cox, Bayport, N. Y.
 1,003,280. Vehicle tire. W. H. Mahlow, West Haven, Conn.
 1,003,314. Reinforced puncture proof tire. J. Anthony, Attleboro, Mass.
 1,003,336. Abdominal supporter. G. M. Champagne, Portland, Ore.
 1,003,356. Tire protector. J. I. Hall, assignor of one-half to E. Snyder—both of East Worcester, N. Y.
 1,003,363. Tire. A. F. Kramer, Freedom, Pa.

Trade Marks.

- 57,136. Manhattan Rubber Manufacturing Co., New York. Representation of a hose consisting of three longitudinal strips, each strip of alternate blue and yellow color. Hose conduits.
 57,291. Empire Rubber Manufacturing Co., Trenton, N. J. The word *Rival*. For cotton rubber lined hose.

ISSUED SEPTEMBER 19, 1911.

- 1,003,479. Pump valve. C. O. Lucas, Dayton, Ohio.
 1,003,579. Pneumatic cushion for vehicles. G. J. Bancroft, Denver, Colo.
 1,003,589. Game apparatus. J. T. Fenton, Salt Lake City, Utah.
 1,003,596. Spring wheel. E. G. Glaser, North Dover, Ohio.
 1,003,605. Aeroplane. L. B. Holland, Philadelphia, Pa.
 1,003,619. Spring wheel. H. Laubersheimer, New York.
 1,003,728. Detachable rim device for road vehicles. A. Flett, London, England.
 1,003,815. Protector for vehicle tires. C. Scott, Baker, Ore.
 1,003,853. Apparatus for extinguishing fires. D. W. Adams, Glendale Springs, N. C.
 1,003,855. Shoulder bag water spraying apparatus. D. W. Adams, Glendale Springs, N. C.
 1,003,856. Horse pack water bag spraying apparatus. D. W. Adams, Glendale Springs, N. C.
 1,003,935. Combined respirator and pressure equalizer. W. F. Merryman, assignor of one-half to P. Hoffman—both of Denver, Colo.

ISSUED SEPTEMBER 26, 1911.

- 1,004,004. Pipe coupling. M. A. Farrell, Raton, N. Mexico.
 1,004,254. Stocking supporter. H. C. Hazard, Baltimore, Md.
 1,004,304. Nipple for nursing bottles. G. R. Sheppard, Cambridge, Mass.
 1,004,318. Resilient vehicle wheel. R. L. Watts and A. G. Onstead, Waxahachie, Tex.
 1,004,343. Pneumatic tire. J. C. Barker, Leeds, England.
 1,004,394. Swimmer's appliance. W. Enders, North Kaukauna, Wis.
 1,004,397. Vehicle wheel. W. F. Fahrney, Chicago, Ill.
 1,004,461. Hose rack. C. and R. Nuhring, Cincinnati, Ohio.
 1,004,464. Tire valve. W. W. Potter, Pawtucket, R. I.
 1,004,480. Vehicle tire. P. G. Seward, assignor to Seward Rubber Tire Co., Inc.—both of Petersburg, Va.
 1,004,481. Vehicle tire. P. G. Seward, assignor to Percy Seward Rubber Tire Co., Inc.—both of Petersburg, Va.
 1,004,487. Anti slipping and skidding device. W. H. Snyder, Ashbourne, Pa.

Trade Mark.

- 57,725. Revere Rubber Co., Chelsea, Mass. The word *Banner*. For horse-shoe pads.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1910.

*Denotes Patents for American Inventions.

(ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, SEPTEMBER 6, 1911.)

- 11,576 (1910). Extraction of dirt, resin and other matter from rubber. J. Thame, East Sheen, London.
 11,605 (1910). Apparatus for making elastic tires and covers. A. von Bucovich, Vienna, Austria.
 11,645 (1910). Non-metallic bodies and tread bands for tires. F. Rose, Liverpool.
 11,664 (1910). Coating metal surfaces with rubber. St. Helens Cable & Rubber Co., J. Taylor and J. H. C. Brookling, Warrington.
 11,695 (1910). Rubber washers in wheel tires. R. T. Shelley, Precision Works, Birmingham.
 11,889 (1910). Rotatable washers in wheel tires. J. D. Rowland and Warne, Wright & Rowland, Watery Lane, Birmingham.
 11,893 (1910). Rubber blocks for cycle pedals. C. Marston and W. Hough—both of Wolverhampton.
 11,937 (1910). Helical springs in elastic tires. K. Müller, Darmstadt, Germany.
 11,954 (1910). Rubber blocks in wheel tires. F. Walton, London.
 12,002 (1910). Spring wheels with pneumatic cushions. C. F. M. Brown, London.

(ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, SEPTEMBER 13, 1911.)

- *12,176 (1910). Waterproof basin for surgical operating pans. F. R. Lindeman, Harlan, and A. P. Hanchett, Council Bluffs—both in Iowa, U. S. A.
 12,202 (1910). Protective rubber thinble for brush handles. A. Taylor, Swinton, Lancashire.
 12,263 (1910). Inflated rubber shells for manufacture of wood substitutes. B. Melzer, Hetschburg, near Weimar, Germany.
 12,354 (1910). Casing of tire valve. A. F. Davies, Streatham, London.
 12,358 (1910). Use of hollow elastic balls in outer packing boxes, to resist shocks. Independence Incubator Co., and A. E. Johnson, Birmingham.
 12,388 (1910). Automatically inflatable life belt. H. W. Fysh, Great Massingham, Norfolk, and T. C. Green, South Chingford, Essex.
 12,435 (1910). Keeping cores of pneumatic tires in position. A. J. McKinney, Highgate, London.
 *12,487 (1910). Improvements in air pumps for inflating tires. J. J. McIntyre, Hartford, Conn., U. S. A.
 12,523 (1910). Improvements in manufacture of tire covers. E. Clark, V. J. Heinecke and C. N. I. Winter-Irving (trading as Motor Tyre Co.), Burnley, Victoria, Australia.
 *12,533 (1910). Metallic tire covers with flexible treads. J. P. Magney, Los Angeles, Cal., U. S. A.
 12,541 (1910). Covers for pneumatic tires. C. Halin, Beauraing, Belgium.
 12,583 (1910). Rubber stiffeners for wearing apparel. F. Kleemann and M. Frank, London.
 *12,646 (1910). Attachment of tires to rims. P. C. Bell, Milburn, N. J., and B. Dahl, Minneapolis, Minn., U. S. A.
 12,713 (1910). Manufacture of metal hoops for pneumatic tires. Bréhier et Cie., Paris.

(ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, SEPTEMBER 20, 1911.)

- 13,047 (1910). Rubber pad in hat pins. E. C. & A. H. Crook, Birmingham.
 13,183 (1910). Paint for tubular tire casings. J. Hubbard, Goodmayes, and W. Cumner, Endsleigh Gardens—both in Ilford, Essex.

13,201 (1910). Improvements in rubber washing machines. Crude Rubber Washing Co. and M. M. Dessau, London.

13,287 (1910). Clip for holding tire inflators. C. W. F. H. and E. A. Bluemel, Wolston, Warwickshire.

13,310 (1910). Improvements in rubber springs. F. W. Lanchester, Edgbaston, Birmingham.

(ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, SEPTEMBER 23, 1911.)

13,425 (1910). Removal of impurities in washing rubber. Crude Rubber Washing Co. and M. M. Dessau, London.

13,560 (1910). Suction recesses in pneumatic tire treads. C. Burnett, Durham.

13,657 (1910). Tire attachments to rims. J. A. Legh, Ambleside, Westmoreland.

13,706 (1910). Anti-skid devices for rubber tired wheels. K. Kahdemann, Berlin.

*13,773 (1910). Detachable rim for vehicle wheels. R. W. Jordan, Boston, Mass., U. S. A.

*13,819 (1910). Method of vulcanizing tires. R. Rowley, New York, and J. J. Coomber, Jersey City, N. J., U. S. A.

13,897 (1910). Manufacture of vulcanized tire covers. G. Fossi, Florence, Italy.

13,925 (1910). Tire attachment to rims. L. Forse and J. A. Mayo, both in Yeovil, Somersetshire, and F. S. Spiller, Hampstead, London.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application).

426,292 (February 18, 1911). Société Française des Tissus Biaisés, A. Bourdin. Covers for pneumatic tires.

426,293 (February 21). A. Cleret. Improvements in hollow elastic tires for cycles, automobiles, carriages, etc.

426,309 (February 21). F. Little. Repairing pneumatic tire covers.

426,331 (February 18). J. Favre. Rubber tires for vehicles.

426,479 (February 15). A. E. Vale. Improved tires, and process of manufacture.

426,513 (February 23). F. Clerget. Improvements in pneumatic tires.

426,451 (May 3, 1910). A. Laffitte. Prevention of coagulation of latex during transportation.

426,457 (February 3, 1911). H. Debaugé. Purification by osmose of natural and regenerated rubber.

426,584 (February 27). G. J. Martel. Appliance for repair of pneumatic tire covers.

426,585 (February 27). G. J. Martel. Appliance for strengthening pneumatic tires.

426,914 (March 7). E. B. Killen. Improved press for making tires and other articles in rubber.

426,911 (March 6). F. Knipp. Rotating heel.

426,946 (March 7). C. L. V. Mundhenck. Improvements in vulcanizing machinery.

427,012 (March 8). W. M. Callender. Processes for production of rubber or other substances resembling rubber.

427,049 (March 8). J. G. A. Kitchen. Improvements in manufacture of elastic tires.

427,059 (May 18, 1910). C. A. E. Putois. Improvements in elastic tires for vehicles.

427,060 (May 18). Société Eng. Verdon & Cie. Improvements in elastic tires for vehicle wheels.

427,205 (March 11, 1911). J. J. P. Le Grand. Mechanical strengthening of pneumatic tire covers.

427,216 (March 13). H. L. Heusch. Pneumatic tire with metallic cover retaining its shape, specially applicable to heavy automobiles.

427,245 (February 22). Filzfabrik Adlershof Aktiengesellschaft. Automobile tires.

427,173 (March 13). A. Schleiffer. Extraction of resins from crude rubber.

THE GERMAN EMPIRE.

PATENTS ISSUED (with Dates of Validity).

238,419 (from June 21, 1910). Georg Pleissner, Dresden. Tires with inserted elastic rubber.

238,215 (from August 3, 1910). The Rubber Patents, Limited, Cowley, and John Turner, Waverley, England. Covering for toy balls, with a foundation of vulcanized textile material.

238,357 (from February 28, 1911). Carl Kleinhaus, Blasewitz, Dresden. Mouthpiece for spray pipe.

239,512 (from August 6, 1910). Dr. Paul Hunxeus, Hannover. Toy figure, straightening itself from bent position.

239,265 (from September 28, 1909). Maschinenfabrik Moenus, A. G., Frankfurt-a-M. Machine for stitching driving belts.

239,002 (from October 16, 1909). Léon Turcal and Georges Nuth, Neuilly-sur-Seine, France. Process for manufacture of masses for polymerization or vulcanizing.

239,045 (from January 19, 1910). Auguste Louis Cadé, Paris. Fastenings for pneumatic tires.

239,151 (from October 18, 1910). Jacob Mevis, Aachen, and Arnold Siep, Junnersdorf b. Zulpich. Cover for pneumatic tires, with imbedded protective appliance.

239,292 (from June 9, 1910). Wilhelm Gluche, Breslau. Elliptical corrugated rubber treads for shoes.

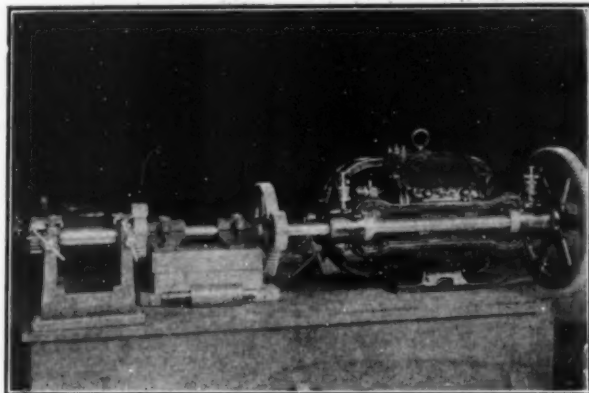
239,766 (from February 18, 1911). Gustav Tietze, Leipzig. Adjustable rubber stamp.

239,699 (from August 24, 1910). Linke & Co., G. m. b. H. Zittau. Improvements in edges of hollow rubber articles.

239,609 (from January 27, 1910). Richard Latour, Menin, Belgium. Protective cover for pneumatic tires, with cords laid crosswise.

THE GOUGH "RUBBER MILL."

THE Wallace L. Gough Co., No. 108 Water street, New York, have recently installed an electrically operated mill grinder and washer for the purpose of testing crude rubber, of which they handle many varieties and which they distribute in large volume.



THE GOUGH "RUBBER MILL."

The Gough "Rubber Mill" is in charge of John Garrett, an experienced rubber mill superintendent, and will no doubt do much to increase the already high standard of the offerings of this well-known house.

UNITED STATES RUBBER CO.'S ISSUES.

Transactions on the New York Stock Exchange for five weeks, ending October 28:

COMMON STOCK, \$25,000,000.

[The treasury of a subsidiary company holds \$1,334,000.]

Last Dividend, October 31, 1911—1½¢

Week September 30	Sales 11,400 shares	High 39½	Low 30½
Week October 7	Sales 59,100 shares	High 45½	Low 40
Week October 14	Sales 17,503 shares	High 45½	Low 43½
Week October 21	Sales 5,300 shares	High 44½	Low 42½
Week October 28	Sales 9,500 shares	High 43½	Low 41½

For the year—High, 47½, March 1; Low, 30½, September 25.
Last year—High, 52½; Low, 27.

FIRST PREFERRED STOCK, \$39,824,400.

Last Dividend, October 31, 1911—2¢.

Week September 30	Sales 3,250 shares	High 106¾	Low 104
Week October 7	Sales 1,750 shares	High 109¾	Low 107
Week October 14	Sales 940 shares	High 110	Low 108¾
Week October 21	Sales 1,285 shares	High 108½	Low 106¾
Week October 28	Sales 1,250 shares	High 107½	Low 105¾

For the year—High, 115½, July 7; Low, 104, September 25.
Last year—High, 116½; Low, 99.

SECOND PREFERRED STOCK, \$9,965,000.

Last Dividend, October 31, 1911—1½¢.

Week September 30	Sales 1,100 shares	High 69	Low 66
Week October 7	Sales 1,000 shares	High 75½	Low 74
Week October 14	Sales 600 shares	High 76	Low 75½
Week October 21	Sales shares	High	Low
Week October 28	Sales 200 shares	High 71¾	Low 70½

For the year—High, 79, March 1; Low, 63, September 26.
Last year—High, 84; Low, 59½.

SIX PER CENT. TRUST GOLD BONDS, \$19,000,000.

Outstanding of the 1908 issue of \$20,000,000.

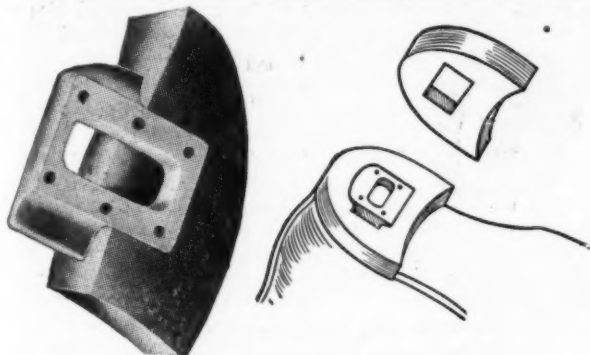
Week September 30	Sales 10 bonds	High 103½	Low 101¾
Week October 7	Sales 34 bonds	High 104	Low 103
Week October 14	Sales 26 bonds	High 103½	Low 103¾
Week October 21	Sales 50 bonds	High 104	Low 103¾
Week October 28	Sales 30 bonds	High 104	Low 103½

For the year—High, 105, July 15; Low, 101¾, September 30.
Last year—High, 106; Low, 102½.

New Rubber Goods in the Market.

INTERCHANGEABLE RUBBER HEELS.

THERE is an almost universal human tendency to run over the outside of the heel. Very few people plant their feet so square and flat that the heel is equally worn all around; but here is a rubber heel that obviates that run-down-heel tendency, as this rubber heel can be changed from one shoe to the other so as to equalize the wear on both sides—whence the name "Double-Wear." Other rubber heels are nailed on, but this is applied differently. The requisite number of lifts are taken off the shoe (this is preferably done by the cobbler), a metal fastener is nailed on the middle of the heel, and this rubber heel is provided with an opening that fits down over



THE HEIMBACH DETACHABLE RUBBER HEEL.

this metal fastener. The wearer can put it in place and also remove it without trouble. [The Heimbach Rubber Heel Company, Duluth, Minnesota.]

THE KLIP LEGGINGS.

The part of a man's anatomy from his knee down to his ankle has not been as well provided for as the other sections. Overcoats come to the knees and high top shoes take care of the ankles, but between those two points there is often lack of adequate protection in stormy or cold weather. A good pair of leggings for an out-of-door man is therefore not only a convenience but often a necessity. The Dusell leggings are waterproof and hence are protection against storms. They are not made in rights and lefts, so you do not have to take the trouble to see which is which. They snap on around the knee without straps or buckles, and a little pull at the knee takes them off readily. In other words, they are so constructed as to go on and off with the least possible trouble. [The Dusell Company, Philadelphia, Pennsylvania.]



DUSELL WATERPROOF LEGGINGS.

HOODS FOR WASHING THE HAIR.

Among the patents recently granted at Washington, is one for a hair washing hood, made in various forms, one of which is shown in the accompanying illustration.

The hood consists of a cover, preferably made of rubber that fits down snugly over the head and around the back of the neck. Inside of this cover there is an inner wall also made of rubber,



HAIR WASHING HOOD.

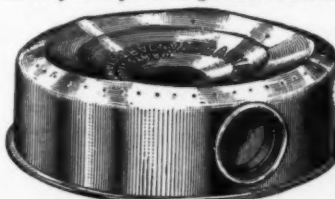
about two inches from the outer wall, and in this space the soap or other cleansing material is placed. The inner wall has a great number of small perforations, these running through little rubber fingers that project inward.

At the top of the hood there is an opening through which water is let in, the water being supplied through the rubber tube attached to a faucet. At the bottom of the hood there is an outlet for the water. The *modus operandi* is as follows: The hood is fitted around the head snugly so that the water will not come down over the face or neck; the water is turned on, the saponifying substance having previously been placed in the receptacle left for it between the walls. The water then runs through the soapy matter and through the hollow fingers which press against the scalp.

The cut shows the hood used where a woman is blessed with a considerable length of hair. A much smaller hood without the extension for flowing locks would be used for a man. Orlando B. Salisbury, New York (Inventor and patentee).

IT SPRINKLES SQUARE.

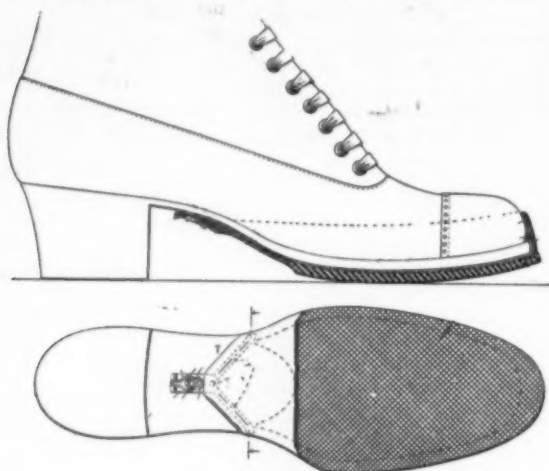
The ordinary lawn sprinkler waters a plot round in shape, but as very few plots of ground come in that shape, most lawns being rectangular, the ordinary lawn sprinkler must necessarily leave dry corners. Here is a lawn sprinkler that wets a square plot. It is called the "Baby" Fountain Lawn Sprinkler, being only 5 1/4 inches in diameter. It is made of brass and handsomely polished. It throws out the water in the form of a mist and so cannot do any harm to the most delicate vegetation. [The Standard Stamping Co., Marysville, Ohio.]



THE STANDARD; "BABY" LAWN SPRINKLER.

THE NEW INVISIBLE OVERSHOE.

For a good many years inventors have been trying to devise an overshoe that would do its work and yet keep out of sight. It is a well-known fact that nobody particularly cares to show



A "LOCKON" RUBBER SOLE.

his rubbers, no matter how much he may want to wear them. Because of this general desire to have rubbers, but not show them all manner of clogs have been put on the market, the most advertised and best known being the "Everstick," a great many pairs of which have been worn during the last few years.

Now comes a new invisible rubber shoe, or more properly a rubber sole, and its quality of invisibleness cannot be questioned for it simply fits around the sole, although it can be made with a suggestion of a vamp at the toe. It differs from any former invisible rubbers in a mechanical device at the shank of the shoe which holds it on, whence its name the "Lockon." This locking device as shown in the accompanying cut consists of a rubber loop running back from the sole and ending in a metal buckle, which catches in a staple, which is fastened in the shank of the leather shoe.

It is claimed that this rubber sole can be put on and removed as readily as the ordinary overshoe. [Maurice C. Clark, Providence, Rhode Island, patentee.]

"ROUGH RIDER" GRIPS FOR BICYCLES.

Grips for bicycles and motorcycles of the "rough rider" type, are among the recent offerings. They are made with a basket-weave surface, which affords a very comfortable grip for the hand and avoids the



BICYCLE AND MOTORCYCLE GRIPS.

stickiness of a smooth surface. These grips are made in either red or gray. [Morgan & Wright, Detroit, Michigan.]

MACKINTOSH COVERS FOR AUTO SEATS.

THE OWNERS OF FINE CARS WHO WANT to keep the upholstery in good condition can get waterproof cushion covers for this purpose. They should see, however, that the covers are actually waterproof, and that they fit the cushions properly, covers too big being almost as unsatisfactory as covers too small. They should also see that they are reinforced with patches under each fastener to prevent them from pulling out.

DOVETAIL AIR CUSHION RUBBER STAMPS.

Rubber stamps made by the patented dovetail air cushion method have certain advantages. They are beveled so that in



using the stamp one can see where it is going instead of guessing at it, as in many of the square edged stamps. Moreover the cushion is dovetailed into the moulding so that it cannot fall off as often happens with the ordinary stamp. [Lamb & Tilden, Washington, District of Columbia.]

A CLAMP FOR HOSE

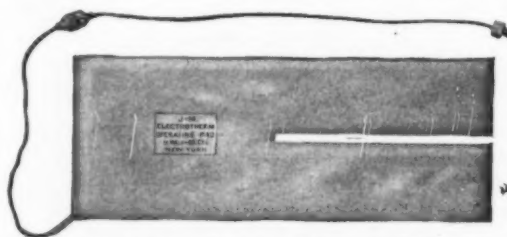
When hose becomes spongy or leaky it is a good idea to cut out the leaky section, trim the two ends evenly and clamp them together with the proper tube inside.

THE WALKER
HOSE CLAMP.

Here is an illustration of a little clamp for use in garden hose. This clamp is put over the hose, a nail or a piece of wire or a punch is inserted in the hole at the top, and then by a few backward and forward movements of the nail, which catches in the holes of the inner band, the clamp is gradually tightened and held by the pawls of the top piece which catch in the notches of the inner band. [The Walker Hose Clamp Co., Battle Creek, Michigan.]

RUBBER PADS KEPT HOT BY ELECTRICITY.

The hot water bottle, generally useful though it is, has some disadvantages. It is hottest when first applied, and gradually cools and has to be removed from the patient for refilling. It also has considerable weight, which in certain sensitive cases is trouble-



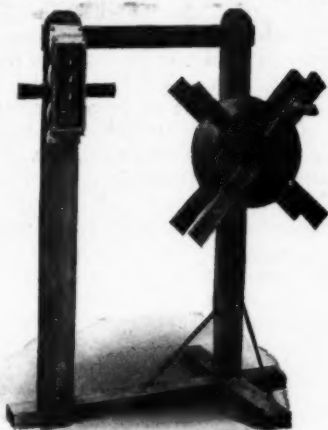
ELECTROTHERM PAD FOR OPERATING TABLE.

some. The J-M Electrotherm is designed to obviate all these disadvantages. It is light, is heated by electricity so that the heat can be turned on gradually and continued as long as desired. It is a soft, flexible pad, rubber surfaced, like that shown, and contains carefully insulated wires. When connected with an ordinary incandescent light socket the Electrotherm heats to any desired temperature in a few minutes. A regulating switch makes it possible to turn on any degree of heat desired, and a thermostat automatically limits the temperature to a safe degree. [H. W. Johns-Manville Co., No. 100 William street, New York.]

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

A WIRE REEL THAT MEASURES.

This device really ought to save time and trouble, as it measures the various sizes of wire, cable and cordage as they are rolled up. In the meter the wire passes between two self-

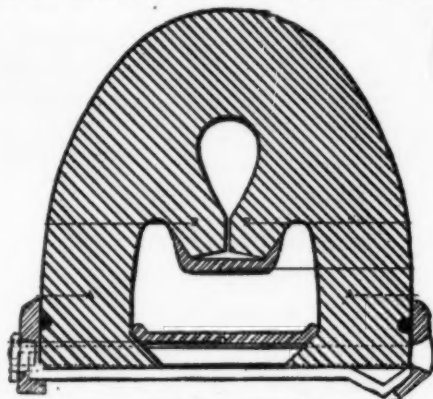


WIRE REEL AND METER.

adjusting rollers, which admit of considerable range and measure large or small sizes with equal accuracy. The reel is provided with removable crossbars and the drum with grooves, so that the coil can be bound with tight wires and removed in compact form. The device occupies but small space, and when not in use can be set to one side. [Minneapolis Electric & Construction Company, Minneapolis, Minnesota.]

A TEN THOUSAND-MILE TIRE.

"Ten thousand miles or your money back" is the reassuring guarantee given by the D & S Airless Tire Company. This is one of the latest productions of the tire inventors, who are trying to get the resiliency of a pneumatic tire without the disadvantages of an inner tube. The cut shows the airless tire. The tread or arch is supported by the two side walls or trusses (marked A). From these two side walls two arms (marked B) project inward and meet when the tire is in a normal position. A crosspiece of very strong rubber connects these two arms. When the tire is subjected to great weight these tend to sepa-

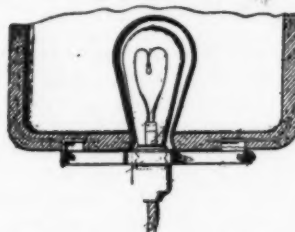


THE D & S AIRLESS TIRE.

rate, but are held together by the connecting crossband. If the pressure on the tread becomes particularly heavy these two inner arms will be pushed apart until they touch the side walls, which is as far as they can go. The tests which have been given this tire in Philadelphia seem, according to the daily papers of that city, to have been very successful. [D & S Airless Tire Company, Philadelphia, Pennsylvania.]

A HOT WATER BOTTLE THAT STAYS HOT.

The trouble with a hot water bottle is that it does not stay hot, at least indefinitely. Here is a device to cure that defect.

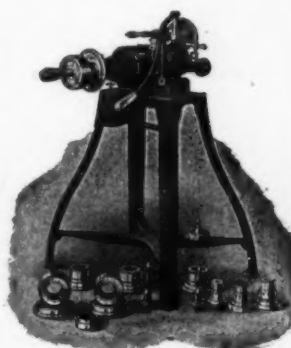


SHOWING ELECTRIC BULB IN BOTTLE.

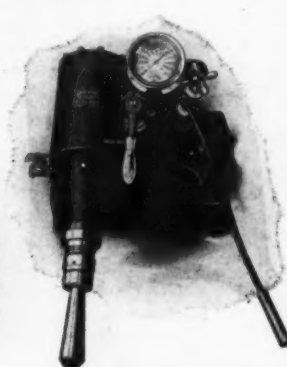
It is a hot water bottle, in the bottom of which is a built-in chamber into which an electric bulb can be fitted. The socket of the bulb comes even with the bottom of the bottle, and at that point there are clamping arms that encircle the socket and hold it in place. If the current is turned on the water, of course, continues hot. The bottle can be filled with cold water and heated by the bulb where that is more convenient. [Patented by Dumont P. Lamb, Portland, Oregon.]

THE BUCKLEY HYDRAULIC EXPANDER.

A TOOL which has created much interest among manufacturers of fire, suction, chemical and other hose, and among fire departments in general, is the Buckley hydraulic hose coupling expander and hose-testing machine. This ex-



FRONT VIEW OF BUCKLEY HYDRAULIC EXPANDER.



TOP VIEW OF BUCKLEY HYDRAULIC EXPANDER SHOWING HAND PUMP.

pander is used for attaching the couplings to all kinds of hose, and not only is the work done quickly, but it is said that there is no chance of the couplings being put on too tight or not tight enough, which would cause "blow-offs" at fires, thus seriously crippling the work of extinguishing at critical moments. The exact pressure required to properly attach each size of coupling is plainly stamped on the machine and, if properly used, there is no chance for error. Any size of coupling from the smallest chemical hose coupling to the largest size of suction hose coupling can be handled by this machine. It works by hydraulic pressure in connection with a small hand pump and a few strokes of the handle on the pump by the operator is sufficient to produce the required pressure for any size of coupling, or an electric motor or a belt-drive attachment can be substituted for the hand-pump feature, thus requiring positively no labor at all. [Larkin Manufacturing Co., Dayton, Ohio.]

A BOOK for everybody interested in tires—"Rubber Tires and All About Them"—this office.

The Rubber Trade at Boston.

(By a Resident Correspondent.)

BOSTON is to be improved industrially, educationally, hygienically and otherwise during the coming years, and by 1915 it is expected to be the very acme of all things a city should be. The Chamber of Commerce is accomplishing much in this direction, and the New England Industrial and Educational Exposition, which was held during the entire month just past, has shown, in a measure, what has been done and is doing along these lines. There are many working exhibits of leading industries, and a whole section showing what is being done in the way of industrial education by the city schools and various institutions and by private enterprise.

The rubber trade was not so fully represented as its importance deserves. The Hood Rubber Co. had a most interesting working exhibit, and the Shawmut Tire Co. showed samples of its goods, including sectional and partly made tires. The Foster Rubber Co. exhibited its rubber heels and cushions, also its new horseshoe cushions, and its giant black cat (with a man inside) made periodical trips through the building. Hunt's composite rubber heels were shown in the basement, and Jenkins Brothers exhibited their sheet packing in connection with their valve display.

The exhibit of the Hood Rubber Co. attracted a great deal of attention, as it was one of the unique features of the exposition. In their booth there was a hut of the shape and about the size of those

usually occupied by the natives who gather the rubber along the Amazon River. The posts of this rubber gatherer's hut were hung with sheets of Pará rubber, while the walls were made of blocks of the cultivated Ceylon rubber. Inside the hut skillful workmen were making rubber boots and shoes. This naturally attracted a continuous crowd of spectators, and they seemed chiefly impressed with the number of pieces that constitute the usual articles of footwear, 32 separate pieces going into the boot and 21 being combined to form a woman's croquet. These rubbers were all made over the aluminum lasts used by the Hood company.

In addition to this working exhibit there was displayed a very full line of the Hood output and large-sized photographs of the different departments of the factory, which helped to give a further idea of the size of their plant. The guessing contest, referred to in another column, in which the visitors were asked to guess the weight of a large biscuit of rubber, also attracted a great many people.

The exhibit of the Foster Rubber Co. displayed a full line of the "Cat's Paw" and "Foster" rubber heels and soles. The "Cat's Paw" heel has proved very popular and has reached a production of about 30,000 pairs a day. This heel, by reason of the patented friction plug in the back, both prevents slipping and gives extra wear.



Down in the basement the Hunt composite rubber heel was exhibited. This heel is made at the factory of the Boston Woven Hose & Rubber Co., with which Mr. Hunt, the inventor, is connected. The heel has a core or centre composed of rubber, in which layers of cotton duck are introduced and around this an edge of rubber without any fibrous admixture. The heel is a new one, but recently placed on the market.

* * *

Work is progressing most favorably on the new Forsyth Dental Infirmary, that splendid charity which has been previously mentioned in THE INDIA RUBBER WORLD. The granite foundations are now being laid, and within a few weeks the beautiful white marble walls will begin to rise and the building show the results of Architect Graham's care and study.

This novel charity is the first of its kind in America. It is instituted to care for the mouths and teeth of the poor children of this city. It will be a memorial to James Bennett Forsyth and George Henry Forsyth, by Thomas A. and John H. Forsyth, all well-known names in the rubber trade.

This building will be a notable addition to the many beautiful institutional structures in the Fenway district. The original plot of 51,000 feet has been added to by the acquisition of 6,000 feet of adjoining land, and therefore this imposing and palatial edifice will have suitable surroundings to set it off appropriately

and attractively, and thus more fully carry out the founders' ideas.

Thomas A. Forsyth takes a great personal interest in the work of building and is a very frequent visitor to the scene of operations. He attends every meeting of the trustees and is in constant touch with the progress of the building and is looking forward with pleasure to the time when the institution shall inaugurate the noble work for which it is founded.

MOTORS BETTER THAN ARMY MULES.

George T. E. Bliss, who has been in command of a division of the brigade at San Diego, California, has made very extensive tests as to the serviceability of the motor truck for army use. He reports as follows: "From a military point of view the advantages arising from shortening the line of march, from the absence of horses, from the ability to send the trains on long detours, thus insuring their safety and at the same time with the certainty of their being on hand when wanted are obvious. In my opinion the time has come for the adoption of a motor truck specially designed for military service and its gradual substitution for the greater part of the work done at present by escort wagons."

The motor truck was found to have a first cost advantage of \$664, as compared with the cost of an equivalent outfit of three wagons, 12 mules and harnesses. In the cost of operation the motor truck showed a saving of \$372 in 93 days. It looks as if the army mule might lose his occupation.

HOOD RUBBER COMPANY'S EXHIBIT AT THE NEW ENGLAND INDUSTRIAL FAIR.

FOSTER RUBBER CO AT THE INDUSTRIAL FAIR.

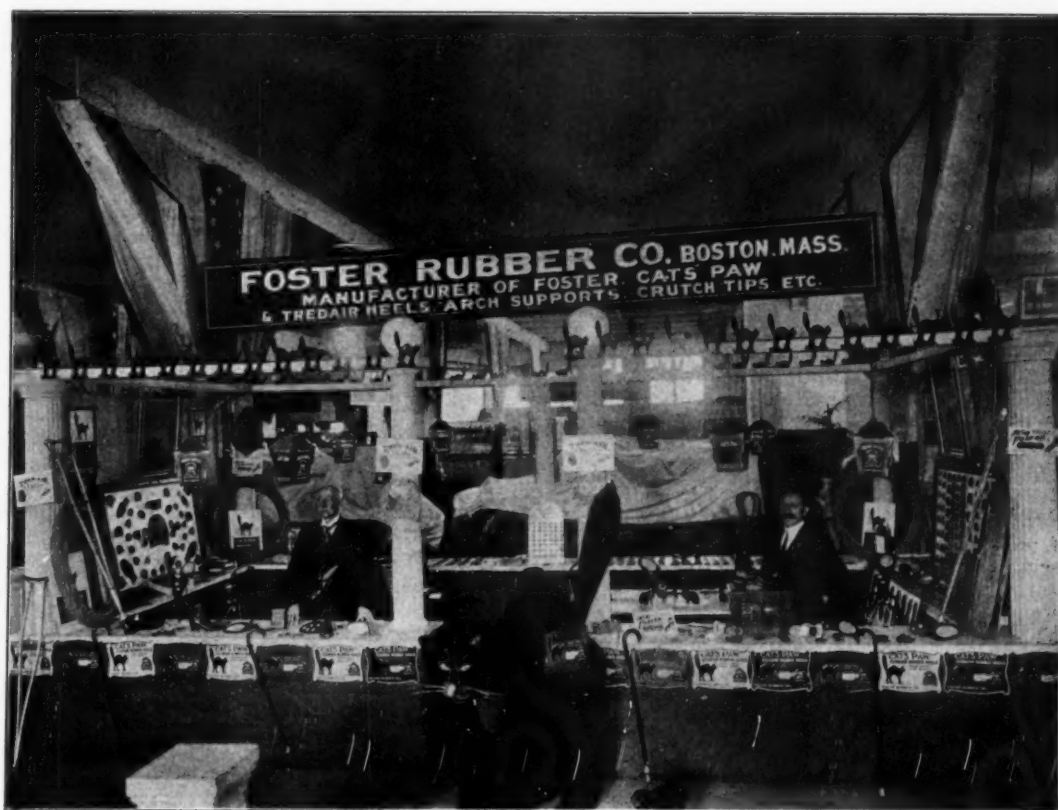
THE Boston Rubber Co. exhibited at the Boston exposition a complete line of its patented specialties, including the Foster, Cat's Paw and Tredair heels, Foster sole, crutch tips, horse shoe pads, and automobile tires, all made with patented fabric tread.

The illustration below is from a photograph of the company's exhibit and shows the various goods which were on exhibition, as well as the numerous black cats—the trade-mark of the Foster Rubber Company, as applied to rubber heels, and especially to the "Cat's Paw" heel. This particular heel has during the past few years reached a large sale and at the present time the company is manufacturing between twenty-five and thirty thousand pair daily. The feature which the Cat's Paw heel claims over the ordinary rubber heel is that the patented friction plug prevents

THE NEW WIRE CODE SPECIFICATIONS.

IT is held that in view of the constantly increasing adoption of electric lighting, the danger of fire arising from defective insulation is a growing source of hazard to life and property. While it had been supposed that the tests of insulated wire adopted early this year by the National Board of Fire Underwriters, had fully covered the important question at issue, recent experience is understood to have demonstrated that wire capable at time of inspection of standing such tests, failed more or less to retain its capacity of doing so; the element of durability being evidently of equal or greater importance as compared with initial properties.

Hence the introduction of more stringent tests has been under discussion between the National Board of Fire Underwriters and the principal insulated wire manufacturers, with the



FOSTER RUBBER CO.'S EXHIBIT.

slipping on wet sidewalks, and at the same time gives extra wear.

A RUBBER TREE IN BOSTON.

When the announcement was made a few weeks ago that Arnold Arboretum, connected with Harvard University, was experimenting with a Chinese rubber tree to see if it could be made to grow successfully in the United States, a great deal of interest was awakened in rubber circles, but no one expected to see a rubber tree yielding a generous amount of latex in the vicinity of Boston in the immediate future. It was quite a surprise, therefore, to the visitors at the Industrial Exhibition held in Boston during October to come upon a rubber tree connected with the Hood Rubber Co. exhibit, which, from time to time, gave forth a plentiful supply of latex. Whether this was purely the work of nature or had more or less artificial assistance it is not necessary to discuss.

result, it is understood, that fresh tests of efficiency will be in force from January 1, 1912, in respect to which alone, the underwriters' stamp will be applied after that date.

While a new and higher standard is thus being introduced on January 1, it is fully recognized that in justice to manufacturers, dealers and contractors, they should be allowed to dispose of such stocks of old code wire as they may have on hand at that date. A further concession will probably be the permission to use old code stamps on hand, upon wire manufactured after that date. However, it is anticipated that after January 1 the greater proportion of old code wire will be unstamped. Up to July 1, 1912, its use would, however, be allowed where permitted by the Local Board of Fire Underwriters. After the latter date its employment would not be authorized by the Underwriters. Of course there will still be a market for a long time for old code wire to be used in connection with repair work.

THE RUBBER TRADE IN SAN FRANCISCO.

(By a Resident Correspondent.)

THERE has been little to indicate what kind of a fall and winter season this is going to be, as far as the rains are concerned. There was one good downpour lasting a few hours, and that is all so far. The rest of the time the weather has been very warm, in fact, the nearest approach to summer weather this summer. Last winter there was no rain until after the first of January, and it is to be hoped that it will begin earlier this season. The merchants all state that business is fairly good, although it seems to be the case that there is nothing that can be said to make it seem particularly lively. The entire state and coast is entering upon a season of prosperity, however, and there is little question in the minds of any of the merchants that the coming year will be more prosperous than either of the last two years.

Last month the Pacific Coast Rubber Manufacturers' Association held its regular annual meeting for the election of officers. The meeting was held in the large banquet room of Tait's cafe, and was largely attended by representatives of the local establishments which are members. Henry P. Martine has been the president during the past year. The officers elected for the coming year are: Jos. V. Selby, president; C. H. Chase, vice-president; Wm. Heckman, treasurer, and on the executive committee, Messrs. McNeilly, Daggett, R. H. Pease, Jr., and Mr. Martine.

The Pennsylvania Rubber Co. has secured the line of the Detroit Demountable Rim. They are also meeting with great success on the coast on the newly acquired Pollock Truck Tire. An important deal has just been closed by this firm whereby they have placed all the lines carried by them with the big Fresno firm of Kuttner, Goldstein & Co. This latter firm operates five large stores in the principal cities of the central and southern valleys, and distribution through these stores will mean a big thing for the rubber firm.

W. W. Wuchter, president of the Swinchart Tire and Rubber Co., of Akron, has been a visitor in San Francisco, having been through the principal cities of the Northwest, where he established agencies for his factory.

The Fisk Rubber Co. has contracted for a two-story and basement reinforced concrete building, to be erected on its property on the northwest corner of Van Ness avenue and Austin street, at a cost of \$15,000.

The Diamond Rubber Co. has undertaken to secure information from every town in the interior of California and Oregon relative to the condition of the roads and the activity of the country sheriffs and constables in those particular localities. A daily bulletin is kept of this information, and it is at the free disposal of all automobilists. It has the beneficial effect of bringing many automobilists into the firm's headquarters. F. O. Nelson, manager of the firm's Los Angeles branch, has returned from his trip to Honolulu.

The Diamond Rubber Co. has opened a branch store at 12th and Harrison streets, in Oakland, California, under the general management of C. E. Mathewson. The local branch manager will be J. O. Stewart. A complete stock will be carried there, and all adjustments will be made by factory trained men. The firm has no more beautifully equipped branch store west of Chicago. It has a tile floor, genuine mahogany fixtures and French bevel plate glass. The increase in business in Oakland is making this necessary, and such a branch is particularly gratifying to the Oakland motorists, because after the 1906 fire the company's Pacific Coast headquarters were for a while in Oakland. Now business has reached such proportions that they were compelled to

open a branch, and a very fine one, too. This is the latest of twelve branches that have been opened up by the Diamond Rubber Co. in the last few years, so that there is now a branch in practically every city of importance in this territory. These branches employ a force of about 175 men, who are under the general supervision of Mr. Mathewson.

William Heckman, secretary of the Gorham-Revere Rubber Co., has severed his connection with that firm, and will probably accept a similar position with Mr. Gorham's large and flourishing engineering plant, The Gorham Engineering Co.

U. S. Grant reports that the new sanitary rubber toilet seat is gaining a firm foothold in the market. A large order has just been placed to supply them for the public playgrounds in San Francisco.

Mr. Muschet, who for sixteen years was purchasing agent for the Risdon Iron Works, has recently started into the engineering and mining specialty business for himself, with offices in the Hooker & Lent building.

All of the local people identified with the rubber business were greatly grieved to learn of the death of Mr. Pierce at the factory of the Cleveland Rubber Company. Mr. Pierce was for some time manager of the former branch here of the Revere Rubber Company, and was one of the most popular men in the business.

Herbert K. Selby, representing the Boston Woven Hose and Rubber Co. in the Northwest, with offices at Portland, Oregon, visited San Francisco during the past week, making his headquarters at the company's offices in this city.

The Auto Tire Co. is a new retail concern which opened on the first of this month at 533 Van Ness avenue. This firm has stores now in New York and Los Angeles. H. A. Demarest is the manager.

The Continental Tire Co. has leased a new building, now nearly completed, on Van Ness avenue, between McAllister street and Golden Gate avenue. The building is one story, with mezzanine floor, finished elegantly and along classic lines.

The American Rubber Co. is building a new building for its plant at Emeryville, California. It will build a two-story brick building adjoining its present building, at a cost of \$15,000.

A new firm, known as the New Tire Co., has opened on Van Ness avenue. The firm is under the management of N. C. Dunham, who will make this city the northern distributing point. They have a branch in Los Angeles.

C. C. Eichelberger, Pacific Coast manager of the Firestone Tire and Rubber Co., has returned from his three weeks' trip to the factory reunion at Akron.

Mr. Tripp, in the office of the Bowers Rubber Works, has been taken sick with typhoid fever. He is beginning now to improve, and hopes to be soon on the road to his usual good health.

Mr. Cook, manager for The B. F. Goodrich Co.'s branch in San Francisco, reports that business is moving along in a very satisfactory manner in all departments.

R. H. Pease, president of the Goodyear Rubber Co., reports that they find business greatly improved in all lines since October 1. The small rainstorm of two weeks ago braced up business in

the boots, shoes and clothing lines. All it will take, he says, will be a little more rain occasionally to keep a good business going in those particular lines.

Chanslor & Lyon, of this city, have recently acquired the coast agency for the Kelly Racine tire.

James F. Childs, representative of the American Hard Rubber Co., is expected here on his annual trip about the first of November.

Nat. Dodge, of the Western Belting and Supply Co., is now visiting in San Francisco. He comes from the New York office.

The Panama Rubber Co. has sold out to the Plant Rubber and Supply Co., and its manufacturing plant has been moved from First street to the establishment of the latter firm on Beale street.

The Gorham Engineering Co. has been awarded the contract for supplying the fire apparatus for the city of Palo Alto.

The F. A. Cigol Rubber Co. has placed its agency on the coast with Wm. Getty, in the Sheldon Building.

The National Pacific Rubber Co. has been incorporated in Los Angeles with a capital stock of \$200,000, three subscribers being J. R. Nash, H. L. Dietcher and E. B. Hottler.

Louis H. Scherer has sold a half interest in the Pneumatic Rubber Re-Thread Tire Co. The company is not incorporated.

NEW TRADE PUBLICATIONS.

THE North British Rubber Company, Limited, Castle Mills, Edinburgh, has prepared a little booklet entitled "Scientific Rubber Manufacture," which gives in considerable detail and with various photographic illustrations a description of the scientific manner in which the work at that factory is conducted. This booklet is *apropos* of a new laboratory and experimental department which the company has recently built and equipped. The work in this new laboratory, which is the third that the company has installed during the last ten years, is divided into several departments as follows: Research chemical laboratory, routine chemical laboratory, physical, electrical, experimental, and mechanical laboratories. The research chemical laboratory, as its name indicates, is devoted to experimental work in chemistry. In the routine chemical laboratory the supplies of the factory—crude rubber, chemicals, etc., are tested. In the physical Laboratory the specific gravity of finished goods is carefully investigated and especially in goods used in aeronautics—balloon and aeroplane fabrics—with special reference to their impermeability to hydrogen. In the electrical laboratory tests are made on rubber gloves and vulcanite goods to see what resistance they have to electric currents. The experimental department is in reality a complete rubber mill on a small scale with mixers, grinders, etc. In the mechanical laboratory tests are made as to the tensile strength of fabrics used in the factory. It is altogether an interesting little booklet, especially to rubber manufacturers. [4 x 6½ inches. 16 pages.]

The Firestone Tire and Rubber Co., Akron, Ohio, has just issued a finely printed octavo catalogue, 20 pages and cover, descriptive of the rims it makes. This company believes that it is an unwise policy to pass the making of rims over to outside manufacturers, and that it is much more conducive to good results to have the rims made by those who make the tires, in order that the two may develop together and the best combination be effected. This little catalogue illustrates and de-

scribes the Standard Clincher Rim; the Quick-Detachable Clincher Demountable Rim; the Dual Quick-Detachable Clincher Demountable Rim; the Quick Removable Rims for side wire motor tires, and the Channel Rims. Diagrams are given that make it very easy to locate the different parts that constitute these various rims.

Lewis & Peat, London, England, have recently sent out a pamphlet of some thirty pages, entitled "International Rubber Exhibition, Agricultural Hall, London, 1911; A Short Criticism on the Exhibits from Ceylon, Southern India, Malaya, Dutch East Indies, Uganda and East Africa." They preface their criticism by congratulating the planters who exhibited in the recent exhibition on the excellent quality and condition of their samples, which showed a marked improvement in their preparation over those displayed at the exhibition three years ago, the bulk of the samples of *Hevea* being in blanket crepe form. In the opinion of the authors, the two best forms of preparation of rubber for the market and the form in which the rubber is most saleable are blanket crepe and smoked sheet, and most of the exhibits from the Ceylon and Malay estates were in one of these two forms. There were only a few samples of *Hevea* shown in the Uganda section, but these were enough to show that this species of rubber can be successfully cultivated in that country, as the quality was excellent and the rubber strong and marked by all the characteristics of the *Hevea* grown in the Far East. Of the *Ceara* rubber from East Africa, there were many excellent samples, but all, in the opinion of the authors, had one fault, namely, too much resin.

Volume 1, No. 1, of "The Goodrich," a monthly magazine, published by The B. F. Goodrich Co., has recently come from the press. This magazine is intended for the automobile and commercial truck manufacturers and dealers and also for the users of commercial vehicles. The object of the publication, in addition to further acquainting the public with the merits of the Goodrich products, is to bring together the manufacturer, dealer and user of automobiles and commercial vehicles in mutual coöperation. Its columns are open to all discussions that would be helpful to the people interested in this subject, and to the exchange of ideas.

This initial number, which is profusely illustrated, is devoted quite naturally to showing—succinctly—the wonderful growth of The B. F. Goodrich Co., which started in Akron—the first of the rubber companies to locate in that city—in 1871, in a modest little mill that could be now easily tucked away in one of the rooms of the present plant which covers over 32 acres. Those were the days of small beginnings, for in 1880, nine years after the founding of the business, it only employed 55 men. It now has 5,000 employes, which is a quarter of the total number of rubber workers now located in Akron—very properly called the "Rubber City" of America.

The United States Tire Company has distributed its October number of the publication entitled "U. S. for U.S." As stated on the cover of this publication, it is intended for exclusive circulation among the employes of that company, and for that reason is written in a very familiar vein. It gives, however, much wholesome advice on the methods of achieving success in general, and particularly success in marketing United States tires. The author quotes from Emerson and draws his illustrations from the Old Testament, thereby displaying a commendable range of reading.

A RUBBER STOCKING WORTH \$1,500.

A Chicago jeweler, who recently arrived in New York on one of the Holland-American boats, wore a rubber stocking which proved to be worth \$1,500. This high appraisal was not due altogether to the quality of the fine Up-river Pará used in its construction, but was attributable rather to the fact that the customs inspectors discovered \$1,500 worth of unset diamonds carefully stowed away within the stocking. This shows that hardly a day goes by that some new use is not discovered for rubber.

The Rubber Trade at Akron.

(By a Resident Correspondent.)

FROM one man, Dr. B. F. Goodrich, can be traced the development of Akron's immense rubber industries.

In 1869 he was a real estate dealer in Brooklyn. His counsel was John P. Morris. They transferred realty holdings for an interest in a rubber company at Hastings-on-the-Hudson. The company was new, the rents were heavy, competition was keen, and their initial undertaking proved a failure. But this schooling was practical and substantial, the field was promising, and they believed that the West offered better opportunities and more co-operation than the East. In quest of a location for a future plant, Dr. Goodrich first went to Jamestown, New York, and then to Akron. Akron had an informal board of trade, Col. George T. Perkins being president of the organization. The Board of Trade requested Col. Perkins to make an investigation. He reported favorably on the proposition, and the machinery of the factory was shipped to Akron. The site chosen was the center of the present plant, and contained less than an acre of ground. The initial cost was \$1,800. Upon this site was placed a small brick building, which was part of the mill room until 1910.

The moulded and manufactured products began in 1871. Belting, hose and moulded goods were the chief sources of revenue. The White Anchor fire hose was one of its leading products, as it is now.

The partnership form of organization was changed into a company in 1880. The initial capitalization was \$100,000. The incorporators were Dr. B. F. Goodrich, George T. Perkins, George W. Crouse, Alanson Work and Richard P. Marvin, Jr. These men were the first board of electors, and elected the following officers: President, Dr. B. F. Goodrich; vice-president and superintendent, Alanson Work; secretary and treasurer, George T. Perkins. The office force consisted of a bookkeeper and three clerks, one as correspondent and the other as time clerk.

The first addition to the original plant was a small brick building of three stories and a basement, measuring 40x100 feet, made in the summer of 1881 at a cost of \$9,000. About the same time another building was planned for the steam and power supply.

In July, 1884, the old hand presses for vulcanizing were replaced by hydraulic presses. In 1888 the first electric lighting plant was installed, with a capacity of 150 to 200 lights. From this time on active building operation was continued and remodeling of old structures and adding of new ones and buying of more real estate took place. One of the first large buildings was the specialty building constructed in 1895. In 1902 the hose building was added. In 1905 this group was extended by erecting a rubber shoe building.

The chief building period commenced with 1907, in which time a large building for pneumatic tires was erected; in 1908 the new calendar building was put up, and later the machine shop and the truck tire building. The machine shop is five stories high, built around a hollow square. The length of this structure is 185½

feet, and it is 160 feet deep. On the first floor are the repair or maintenance department and the company's garage for tire testing automobiles, for its freight trucks and privately owned machines. The truck tire building is 100 feet wide, 500 feet long, and has six stories and a basement.

The B. F. Goodrich Co.'s force in 1880 numbered 55 men; at present it is more than 6,000.

In 1900 there were eight branches; at present there are 24. These cover the United States, Canada, Mexico and Europe. In addition to the branches, there are 27 stock depots, auxiliaries grouped about these branches. These are established to aid the dealer, enabling him to serve his trade more promptly.

This company directs its European and Asiatic trade from its London branch; goods for its Continental trade will be shipped largely from its Paris factory. The motorists throughout Europe are supplied through 110 stockists, carrying all lines of Goodrich tires. To meet the European and Asiatic trade, the company has incorporated the *Société Française*, B. F. Goodrich, which factory is located at Colombes, near Paris. Special machinery

designed in the United States has been shipped to this plant.

The size, growth and organization of The B. F. Goodrich Co. make it a representative of American ingenuity, industry and enterprise.

* * *

The balloon "Akron," now ready for a trial trip at Atlantic City, is under the roof of a big hangar, its nose pointing oceanward. It contains

40,000 cubic feet of hydrogen gas. The crew has gone into training. Mr. Vaniman requires the men to sleep aboard the 29-foot lifeboat which hangs underneath the 1,500-gallon gasoline supply tank, so that they will become accustomed to the throb of the engines, which are set pulsating every night. This preliminary training was not given to the men in Mr. Wellman's balloon, and consequently the sickness that comes from this new kind of navigation had its effect on the men, which Mr. Vaniman is trying to avoid. Just over the heads of the occupants is the apparatus used as an equilibrator. It has the appearance of the keel of a ship, with a number of small projections covering the smooth surface. This is filled with water, and when the lower temperature at night causes the gas bag to contract and to descend, the opening of several valves will release a sufficient quantity of water to bring the ship to the desired height. When the heat of the day expands the balloon, the hose is thrown overboard and water pumped into the container as needed.

Mr. Vaniman declares it is possible to cross the Atlantic inside of sixty hours, and that he hopes to be able to cross in that time. Frank Seiberling, the Akron financier of the expedition, is optimistic, and believes that Mr. Vaniman will have a successful flight.

THE accepted authority on South American rubber.—"The Rubber Country of the Amazon," by Henry C. Pearson.



BIRDSEYE VIEW OF THE B. F. GOODRICH CO., AKRON, OHIO.

THE RUBBER TRADE AT CINCINNATI.

(By a Resident Correspondent.)

RUBBER footwear manufacturers came in for their share of criticism at the annual convention of the Ohio Retail Shoe Dealers' Association, which was held in this city. It was claimed by the association that the manufacturers are at present practically compelling the purchase of rubber footwear by retailers long before the stock is needed and that these goods must be paid for by December 1 in order to secure a discount which would at all compensate for the additional time it is necessary to carry the stock. It is explained that the dealers do not begin to realize on the stock until after December 1, because of the fact that there is little demand for rubber footwear until after January 1. Another grievance held by the members of the association against the manufacturers is that notwithstanding the downward tendency of the market on the raw material there has been absolutely no reduction of the price quoted by the manufacturers on the finished product. The dealers claim that despite the fact that there has been a tremendous reduction in the price of raw material since last year, the manufacturers have not seen fit to reduce the price on rubber footwear. The association members claim that the price of rubber footwear should fluctuate with the market, as do automobile tires and certain other rubber products, and they hold that they are being discriminated against not only in that they are compelled to purchase and pay for their goods before the sale season is actually on, but must pay prices entirely out of proportion to the cost of production.

The matter of bringing about an adjustment of the grievance held by the association was referred to a committee with instructions to formulate plans whereby the association will get a "square deal" from the manufacturers. Before the convention closed the committee through its chairman G. C. Marsh, who is vice-president of the association, gave out the statement that the association will either finance a company for the manufacture of rubber footwear, or either have the entire association combine and make its purchases in immense quantities to secure a reduction in price and then distribute to the retail dealer. The association seems more inclined toward the plan of each member placing his order with one member of the association and have that member combine the orders into one large order and have the goods shipped to a central point in the state and reshipped from that point.

Captain J. F. Ellison of this city has been appointed head of the navigation department of the Port of Pará Company, which has headquarters in Paris and New York. Capt. Ellison will be in command of the company's fleet of 40 new steel steamers, which will open up the Amazon river as it never has been, develop the great rubber producing field and put the state of Bolivia on the map commercially. Capt. Ellison is the secretary of the National Rivers and Harbors Congress, and also secretary of the Ohio Valley Improvement Association. He has resigned the secretaryship of both these organizations. The salary he is to draw is not stated, but it may be accepted that it is the largest ever paid an American river steamboat man. He has signed a contract for three years, and will leave in December to assume charge of the navigating interests of the company. He will be accompanied by the 30 best steamboat engineers, captains and pilots of the western rivers. The amount of money the Port of Pará company plans to extend is not stated, but already \$13,000,000 have been spent on the Port alone. The Madeira and Mamore railroad, 210 miles long, is now being built by the company. Of the 40 steel steamers that are nearing completion, 14 of this number being built in this country, will ply on the principal upper tributaries of the Amazon, Madeira, Purus and Jura, and connect with the 12

Holland-built boats which will be confined to the deeper channel of the Amazon. The value of the commerce it is expected this company will do may be estimated from the fact that hardly less than \$100,000,000 will be invested, to open the new rubber field, while 25 tons of supplies must go up the river for every ton of rubber produced.

B. M. Lovell, formerly connected with the Chicago branch of the B. F. Goodrich Co., has been assigned to the Cincinnati branch of the company, as manager, succeeding J. V. Blake, who resigned to accept a position with a blank book publishing company in Michigan.

RUBBER INDUSTRY IN RHODE ISLAND.

(By a Resident Correspondent.)

THE condition of business in the rubber mills and factories making insulated wire in Rhode Island has been steadily improving since the close of summer, and may now be said to be on a satisfactory basis with all factories working, not only on full-time schedules, but in several instances running nights.

The depression, which during the latter part of the summer was responsible for the closing of some of the largest plants in this section, has been so much relieved that those at the head of the mills that felt it most say they do not expect another shutdown in a long time.

The National India Rubber Co. at Bristol is running its large factory on a full-time basis now, and frequently during the past month has been forced to operate several hours evenings to fill orders. Business is especially good in the wire insulating department, although large shipments of rubber shoes have also been made recently.

A system of towers is being added to the plant for the purpose of connecting and operating auxiliary buildings of the wire insulating department by machinery. Work on the erection of the towers began recently in charge of Contractor W. G. Murphy, of Warren.

It is planned to use ropes and pulleys for the outside buildings of the wire department instead of leather belts, since it has been found by tests made that the ropes can accomplish as much as the belts. Foundations of stone and concrete have been laid, and it is expected that within two weeks they will be completed and the new buildings in use.

Many of the orders which this firm is filling are from the Southwest and the Pacific coast, and in the event of a rush brought on by cold weather, the company has well-filled storehouses of the manufactured product which may be drawn upon.

Arthur L. Kelley, president of the Mechanical Fabric Co., of Providence, has been made a member of the executive committee of the Tariff Publicity League, an association just formed in Providence among the leading manufacturers of Rhode Island. The purpose of the league is to disseminate information which will tend to show what the league regards as baneful effects resultant upon tariff tinkering, and more especially from the prospective lowering of protective schedules.

Additional hands are being constantly taken on at the Providence plant of the United States Tire Co., which is operated day and night. Work on three new buildings, which materially increase the size of the plant, has just been started. Each of these is of one story in height, and constructed of wood. One of the new buildings will be used as a storehouse, while the others are for sheds.

A recent addition made to the plant of the American Electrical Works at Phillipsdale is a stranding department, which is now in

operation. The building that houses this department is over 100 feet long, and the machinery for manufacturing the strands is running. Motive power is supplied by electricity.

The American Electrical Works is this year assessed by the town of East Providence on a valuation of \$603,450.

Both the Alice and Millville mills of the Woonsocket Rubber Co. at Woonsocket, are running on full time at present, employing as many hands as their capacity will allow.

The Phillips Insulated Wire Co., of Pawtucket, having worked its plant on a schedule of five days a week for some time, has just felt that business conditions warrant the addition of a half day to the working hours. This shop is one of the largest wire making establishments in Rhode Island, employing over 300 hands.

The Washburn Wire Co., of Phillipsdale, paid its regular quarterly dividend of 1½ per cent. on preferred stock October 2. This company is assessed by the tax collectors of East Providence on a valuation of \$380,114.

Business at the factory of the Consumers' Rubber Co., in Bristol, is brisk at this time, and for several weeks it has been necessary to maintain an overtime schedule. Terrence McCarty is president of this concern.

OPPORTUNITIES FOR AMERICAN TRADE IN GERMANY.

GEORGE S. ATWOOD, secretary of the American Association of Commerce and Trade, in Berlin, who has been very active in encouraging and assisting American trade in Germany, and who incidentally is a very good friend of this publication, sends us the following list of interrogations, which we are very glad to publish:

Did you ever try to sell your goods in Germany?

Did you ever hear that Germany has a population of over 65,000,000?

Did you ever realize that these 65,000,000 of people are great buyers?

Did you know that some of the biggest American firms are doing a rattling good business in Germany?

Did you ever stop to think that labor-saving machinery is eagerly bought in Germany?

Did you ever hear that American machinery has revolutionized several branches of German manufacture?

Did you ever know that the Germans are like the Athenians of old, always looking after something new?

Did you every try to exploit the German market?

Did you know that the Germans are larger buyers of American machinery and American-made goods than all other Europeans?

Did you ever hear of the American Association of Commerce and Trade, Berlin?

Did you ever hear that this association was organized primarily for the promotion of American trade with Germany?

Did you ever hear how the American Association of Commerce and Trade has assisted American business men?

Did you ever consider it would be wise and in your interest to ask the American Association of Commerce and Trade to help you?

Did you ever consider the advisability of becoming a member of the American Association of Commerce and Trade?

Did you ever ask the assistance of this association to help you enter the German market?

If you have not done this, do so at once!

INTERCONTINENTAL RUBBER CO.—ANNUAL REPORT.

AT the meeting of the stockholders of the Intercontinental Rubber Co., held October 3, the annual report for the year ending July 31, 1911, was submitted. All the retiring officers were reelected. The 1 per cent. quarterly common stock dividend which was paid during the past year was not declared for the next

quarter. We give below the salient paragraphs of the report, together with the balance sheet:

"During the fiscal year above mentioned, quarterly dividends of 1¼ per cent. have been paid on the outstanding preferred stock, and four dividends of 1 per cent. each have been paid on the outstanding common stock, and in addition thereto the outstanding preferred shares of the company have been reduced to \$1,250,000, thereby reducing the dividend charge ahead of the common stock \$52,500, so that it is now but \$87,500 per annum.

"While the profits of your company for the fiscal year ending July 31, 1911, amount to \$2,640,518.69, from which you paid dividends amounting to \$1,299,490.00, leaving a net amount, less depreciation (\$137,145.63) added to surplus of \$1,203,883.06, your directors feel that the unsettled conditions in Mexico, which may affect both the cost of operation and the delivery and gathering of the shrub, which is your raw material, justify extremely conservative action at this time, and looking toward the permanent benefits to your company and to the value of your holdings, it seems wise to accumulate and hold the surplus for the benefit of the company for future development, rather than disburse it in dividends, or retire a further amount of preferred stock, which would be the regular course in normal times based upon the results obtained during the past fiscal year.

"Your directors are also of the opinion that the high prices of rubber which have prevailed on our contracts for the past several years may suffer a decline during the coming period, as is evidenced in so many other staple commodities. They also feel that the investors in your securities will appreciate such conservative action, and will be in thorough accord with their decision to pass the dividend on the common stock until such time as conditions justify its resumption."

BALANCE SHEET—JULY 31, 1911.

ASSETS.			
Investments		\$30,193,523.58	
Accounts and Notes Receivable, etc.:			
Advances to subsidiary companies.....	\$1,787,799.30		
Sundry accounts	2,675.41	1,790,474.71	
Cash		1,393,145.19	
		\$33,377,143.48	
LIABILITIES.			
Capital Stock:			
Common	\$29,031,000.00		
Preferred	1,250,000.00		
Total capital stock outstanding.....		\$30,281,000.00	
Amounts Payable, Taxes Accrued, etc.:			
Due subsidiary companies.....	\$9,097.45		
Sundry accounts	12,486.74	21,584.19	
Dividend payable		290,310.00	
General reserve account		1,050,000.00	
Surplus (as below).....		1,734,249.29	
		\$33,377,143.48	
SURPLUS ACCOUNT.			
Surplus August 1, 1910.....		\$530,366.23	
Gross profits for year.....	\$2,714,255.45		
Less:			
Administration and general expenses	73,736.76		
Net profit for year.....		2,640,518.69	
Total		\$3,170,884.92	
Charges against surplus:			
Accounts charged off.....	\$137,145.63		
Dividends paid	1,299,490.00	1,436,635.63	
Surplus July 31, 1911.....		\$1,734,249.29	

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

News of the American Rubber Trade.

UNITED STATES RUBBER CO. DECLARES A COMMON STOCK DIVIDEND.

AT the meeting of the board of directors of the United States Rubber Co., held at the company's New York office, No. 42 Broadway, on October 5, the board declared a quarterly dividend of 1 per cent.

The following statement relative to the resumption of dividends on the common stock has been issued by the president of the company.

"Notwithstanding the fact that for some years past the surplus net earnings of the United States Rubber Co. have been considerably in excess of the sum required for dividends upon the preferred stocks, the directors have felt it for the best interests of the company, for reasons from time to time stated, to defer the payment of dividends upon the common stock of the company.

"While thus far in our present fiscal year there has been a falling off in certain lines of business of the company, owing to general conditions, other lines show a substantial gain, thus insuring from the entire business of the United States Rubber Co. and its subsidiary companies not less than an average product and profit for the year.

"This being so, the board of directors have felt justified in resuming, at this time, quarterly dividends upon the common stock, and have declared a dividend of 1 per cent., payable October 31, 1911."

This is the first dividend on the company's common stock since 1900, during which year 2 per cent. was paid. Previous disbursements on this stock were as follows: In 1895, 2½ per cent.; in 1897, 2 per cent.; and in 1899, 2 per cent., making all told up to the present time, including that just paid, 9½ per cent.

THE REPUBLIC RUBBER CO. INCREASES ITS STOCK.

The stockholders of the Republic Rubber Company, Youngstown, Ohio, will meet on November 10 to pass upon the proposal of the directors to issue \$1,000,000 preferred stock. President Robinson of the company is quoted as stating that one-half of this amount will be used for immediate additions to the plant and the remainder for improvements to be made later. He states that the company has more orders than can be filled, notwithstanding the extensive enlargements recently made.

THE NAUGATUCK CHEMICAL CO. DISSOLVES.

At the special meeting of the stockholders of the Naugatuck Chemical Co., called by order of the board of directors, and held at the office of the company, No. 42 Broadway, New York, on October 19, it was voted to dissolve the corporation. The reason of this dissolution is as follows: The business of the Naugatuck Chemical Co. is conducted exclusively in Naugatuck, Connecticut, where the works are located. It was thought wiser therefore to dissolve the New York corporation and to transfer the assets to The Naugatuck Chemical Co., a Connecticut corporation, formed some little time ago.

A \$766,300 RUBBER SUIT.

Richard S. Kaufmann was recently granted by Justice Bijur of the New York Supreme Court, leave to publish the service of papers in the suit which Mr. Kaufmann has brought against Gubbay & Co., Limited, of No. 16 Place Vendome, Paris, for \$766,300. Mr. Kaufmann gives his residence as Staten Island. He declares that in April, 1910, Antune & Co., of Pará, Brazil, owners of great rubber forests, offered to sell their interests to him for £842,500, equal to \$4,083,700. Gubbay & Co., Mr. Kaufmann declares, learned of this sale and offered to buy the properties from him for £1,000,000, equal to \$4,850,000. After inspecting the balance sheets of the Antune Company for five

years back the Gubbay Company, Mr. Kaufmann asserts, informed him that they were satisfied and would purchase the property. Three weeks later, he declares, the company suddenly backed down on their proposition.

Mr. Kaufmann is suing to recover the difference between the price which he says he paid the Antune Company and the price which, he alleges, the Gubbay Company offered him.

THE GOVERNMENT WANTS ELECTRICIANS.

The United States Civil Service Commission announces an examination, to be held on November 22, 1911, for positions as electrical assistants in the signal service-at-large in the War Department. The salary attached to this position is \$1,080 per year. The subjects which will count in the examination are: practical questions in electrical science, 20 per cent.; practical questions in construction and installation of electrical instruments, 30 per cent.; and training, experience and fitness, 50 per cent. Applicants should be familiar with the practical side of electricity as applied to telegraph, telephone and kindred engineering; and should be familiar with the equipment and methods of installation of telephones, storage batteries, motor generators, switchboards, wire and wireless telegraph apparatus. These examinations, which are open to all citizens of the United States, will be held in a great many places all over the country, a list of which can be obtained by writing the United States Civil Service Commission, Washington, D. C.

PERSONAL MENTION.

THOMAS H. DAVIS has become president and manager of the Granite State Rubber Co., Manchester, New Hampshire.

Ira J. Cooper, formerly with Morgan & Wright, has left that company and formed the Ira J. Cooper Rubber Co., to be located at Cincinnati, Ohio.

Thomas G. Richards, president of the B. & R. (Beebe & Richards) Rubber Co., in company with Mrs. Richards and Mr. and Mrs. Mahoney, recently took an extended automobile tour through New York state. Mr. Mahoney is foreman of the pad department of the factory.

Ex-Governor A. O. Bourn, treasurer of the Bourn Rubber Co., celebrated his birthday October 1, with a double dinner party, one on October 2, and the other given the following day. This division of the festivities was because of the large number of friends the Governor wished to invite, whom it required two dinners to entertain adequately.

The Massachusetts State Board of Trade held its twenty-first annual meeting with an accompanying lunch at the Hotel Vendome on October 10. William H. Gleason, treasurer of the Revere Rubber Co., Chelsea, Massachusetts, and Marsh G. Bennett, general manager of Samuel Cabot, Inc., Boston, are prominent members of this organization and are on the Committee on State Legislation, the former representing the Rubber Club of America.

A. W. Warren, secretary of the Hodgman Rubber Company, New York, has returned from Europe, where he spent a Fall vacation in England, France and Germany.

The families of two well-known rubber men were interested in a wedding which occurred October 17 in the Universalist Church, Malden, Massachusetts, when Miss Ruth Barker, daughter of William E. Barker, merchandise manager of the branch stores of the United States Rubber Company, was married to George Kenyon, of the Kenyon Rubber Company, of Brooklyn.

D. E. Beynon has been appointed superintendent of the Dunlop Tire and Rubber Goods Co., Limited, Toronto, Canada, in the stead of W. R. Blowers, resigned.

THE WALPOLE RUBBER CO.

A VERY good illustration of how large enterprises can be developed with proper ability from small beginnings may be found in the Walpole Rubber Co., Walpole, Massachusetts, which began twenty years ago as the Massachusetts Chemical Co. manufacturing liquid electrical insulation in a very small plant in South Boston, Massachusetts. From the manufacture of this insulation is gradually developed into the manufacture of insulating friction and rubber tapes, in which department its business has grown to such an extent that one day's production of insulating tape would now extend between four and five hundred miles if spread out in a continuous length.

In 1900 the company moved to Walpole and took up the manufacture of rubber heels and soles. Its present production of rubber heels is about 20,000 pairs a day, including the "Cat's Paw," "Foster," and "Orthopedic."

In 1908 the Walpole Shoe Supply Co. was organized for the manufacture of shoe supplies that contain rubber. About this time Mr. F. J. Gleason, the present vice-president and general superintendent of the company, invented an original



WALPOLE RUBBER CO., WALPOLE, MASSACHUSETTS.

process of making hollow moulded goods by the use of a fusible core, which immediately opened up to them a wide field for a variety of rubber products, such as hot water bottles, fountain syringes, and automobile horn bulbs. The next development was the patented Walpole rubber heel for horses. In order to meet the large trade in Canada, a Canadian company was organized and a factory built at Granby, Quebec, in 1909, known as the Walpole Rubber Co., Limited.

In 1910 all these various companies were brought into one corporation called the Walpole Rubber Co., with a capital of \$3,000,000. The success of the company is largely due to the practical ability of Mr. Gleason, the general superintendent, and the financial capability of A. T. Baldwin, the treasurer. The company is especially fortunate in its location in the town of Walpole, 18 miles from Boston, on the Neponset river, from which it gets water power. The mills are situated on a branch of the New York, New Haven and Hartford Railroad, and the town has two other railroads in addition, giving easy and frequent communication with Boston.

TAXICAB COMPANIES COMBINE.

The International Motor Service Association was formed September 13 in New York, for the purpose of concentrating the purchase of supplies by the taxicab, touring car, motor truck, and public service motor companies in America. About 500 firms scattered through the country have joined the association. The association will have its principal office in the Thoroughfare Building, Columbus Circle, New York, where the purchase and contracting for the association will be done. Mr. Charles C. James, founder of the association, says that the motor service companies of America alone purchase annually 18,000,000 gallons of gasoline, 200,000 gallons of lubricating oil, 250,000 tires, 500,000 inner tubes, 25,500 chains, 1,000 motor cars, taxicabs, etc., and \$1,000,000 in insurance premiums.

TRADE NEWS NOTES.

The Marion Rubber Co., of Columbus, Ohio, jobbers in rubber footwear and other rubber goods, are erecting a three-story building on Chestnut street in that city for their exclusive use.

The Petty Tire and Rubber Co., St. Louis, Missouri, has secured a permit for the erection of a two-story building for a salesroom and warehouse, at No. 1834 Locust street, St. Louis.

The Portage Rubber Co., Akron, Ohio, are sending out to the trade a novel and useful advertising device in the form of a small round rubber mat about $4\frac{1}{4}$ inches in diameter with a raised edge representing a tire on a rim. It is made of red rubber and can be used for various purposes on the desk. It is suitable for a mat for an inkstand or for a glass or can be used as a pin or clip tray. In raised letters it bears the story, "The Portage Rubber Co., Akron, Ohio, Manufacturers of Mechanical Rubber Goods and Tires of Every Description." It is a good piece of advertising.

At a recent aeroplane meet in Canton, Ohio, two Akron men, Frederick J. Seiberling, son of the president of the Goodyear Tire and Rubber Co., and E. F. Hemington, advertising manager of the same company, made trips into the air with Walter Brookings and Harry Atwood, the primary object of these aerial excursions being to ascertain how the rubber coated fabrics of the 'planes were working. Mr. Seiberling was in the air for 20 minutes, and professes to have had the time of his life.

Norman E. Mack's "National Monthly" is responsible for the statement that the manager of an asbestos mill, wanting to do something original and distinctive, recently sent out some announcement cards printed on thin asbestos and enclosed in asbestos envelopes. These were sent out to the company's stockholders and being uncertain about the addresses at that time of some of the stockholders the further inscription, "please forward," was added. It seems that one of the worthy stockholders had recently passed away and his widow on receiving the asbestos envelope with the "please forward" instructions was deeply touched.

The New York "Sun," in its issue of October 4, contained the following remarks regarding two recent changes in dividend payments, the passing of the Intercontinental Rubber Co. dividend and the paying of the United States Rubber Co. common dividend:

"Disinterested persons say that there is a connection between dividend prospects for United States Rubber common and dividend passing for Intercontinental Rubber common. The latter company deals mostly in raw rubber, whereas the former corporation handles chiefly finished rubber. Prices for crude rubber have gone from bad to worse in about the way that copper prices have. Therefore what is good for the United States Rubber Company is equally bad for the Intercontinental Rubber Company. In the statement regarding their passing of the common dividend the Intercontinental's directors said they thought prices might go still lower."

Three enterprising fellows were recently arrested and held for the grand jury in Louisville, Kentucky, on the charge of stealing a thousand dollars' worth of insulated wire which the National India Rubber Co., of Bristol, Rhode Island, is using in installing the new fire alarm system in Louisville. These thefts had been going on for several weeks, but eventually the detectives with the assistance of George W. Shaw, of the National company, succeeded in landing the culprits.

The United States Tire Co. is erecting an additional storehouse in connection with its plant at Providence, Rhode Island. The building will be one story and 20 x 50 feet.

The Hamilton Rubber Manufacturing Co., Trenton, New Jersey, is erecting an addition to its plant to be 3 stories high, 60 x 180 feet, and constructed of brick. The cost will be about \$30,000.

The Apsley Rubber Co., Hudson, Massachusetts, has put on an extra night force of men in its spreading department. The company expects to continue night work in its mill for some time.

THE KOKOMO CO. ELECTS OFFICERS.

At the election of officers of the Kokomo Rubber Company, Kokomo, Indiana, held October 11, Fred I. Willis, of Indianapolis, was elected vice-president, and George H. Hamilton, of New York City, sales manager. Both Mr. Willis and Mr. Hamilton recently acquired large holdings in the company. The Kokomo Rubber Company has a capital and surplus in the neighborhood of \$750,000. Heretofore it has manufactured vehicle, motorcycle and bicycle tires, but, according to the plans of the company, automobile tires will also be manufactured in the near future.



FRED I. WILLIS, GEORGE H. HAMILTON, D. L. SPRAKER.

Mr. Willis was formerly secretary-treasurer of the Hearsey-Willis company of Indianapolis, and Mr. Hamilton has been connected with a tire company in the East for ten years. Both men have been active in the welfare of the Federation of American Motorcyclists. For two years Mr. Willis was president of the federation, but was recently succeeded by Mr. Hamilton. For the past seven years, since the organization of the National Association of Cycle Jobbers, Mr. Willis has been secretary. D. C. Spraker, the president, continues in that capacity. D. L. Spraker remains as treasurer, and George W. Langdon is secretary.

TRADE NEWS NOTES.

The Walpole Rubber Company, Walpole, Massachusetts, paid on October 16 a quarterly dividend of 1 per cent. on the common stock and 1¼ per cent. on the preferred stock.

The Goodyear Tire & Rubber Company, Akron, Ohio, expects by reason of its enlarged facilities to have a capacity next year of 3,500 automobile tires, 500 motorcycle tires and 30,000 pounds of solid rubber truck and carriage tires per day.

The Hood Rubber Company had one feature in its exhibition at the Chamber of Commerce Fair in Boston that attracted particular attention. That was a half biscuit of Pará rubber, on the weight of which visitors were invited to guess. Over a thousand guesses were often recorded in a single day, these guesses showing a very wide range, indicating that a great many people have not much conception of the weight of crude rubber.

A new use for rubber, at least one new to the writer, is in connection with the secret rites of the excellent society known as the "Patrons of Husbandry." For what purpose it is used we do not know, but a part of their paraphernalia is a lightning machine to which rubber hose is attached.

The U. S. Rubber Reclaiming Works, Buffalo, New York, is erecting a new mill to be exclusively devoted to high-grade reclaiming, with special reference to the reclaiming of tires and inner tubes by a new process. The new mill will have a 2,700-horsepower motor, which in addition to the motor now in use will give a combined power of 6,000 horsepower, the power being derived from Niagara Falls. The enlarged mill will have a capacity of 25 tons per day and will employ 350 men. The

plant has a laboratory which is equipped with all the latest testing appliances.

This column contained an item in the October issue to the effect that the American Asphaltum & Rubber Company, Chicago, had secured a contract for paving certain streets in Grand Rapids, Michigan, but had been obliged to suspend work owing to an injunction. That paragraph was based upon information derived from a local source and apparently most reliable, but it appears to have been inaccurate, as we are advised by the American Asphaltum & Rubber Company, as follows: "We are not in the paving business, and in the second place we never secured a contract for paving in Grand Rapids or any other place; we have therefore not been obliged to suspend work." It is a pleasure to make this correction.

Over 40 branch managers, salesmen and agents of the Swinehart Tire & Rubber Company held an interesting meeting, September 29 and 30, at the factory office in Akron, Ohio. The policy for the ensuing year was discussed and plans laid for the distribution of the cellular anti-skid truck tire, which is a comparatively new product of the company. At the conclusion of the first day's conference automobiles conveyed the party to Young's Hotel at Turkeyfoot Lake, where they were the guests of the company for the evening.

The Maynard Rubber Co., Claremont, New Hampshire, have installed a new plant for reclaiming rubber which is working most successfully. They are also adding new boilers and other machinery.

The Republic Rubber Company (Youngstown, Ohio) has begun the erection of a building for the Pacific coast branch in San Francisco—of which M. W. Murray, their general western agent, will be in charge.

Mr. Heinz, the pickle man, is not the only one to boast of 57 varieties. The manufacturers of the Kleinert dress shields make 59 different kinds, and as each kind is made in 10 different sizes, they are prepared to supply the trade with 590 distinctly different shields—a sufficient number it would appear to cover every want.

Mr. Arthur C. Squires, after many years' absence is back in Naugatuck, Connecticut, for the purpose of interesting business men of that place in a new rubber clothing factory. Mr. Squires was connected with his father's rubber clothing factory in Naugatuck 30 years ago. Since that time he has spent many years in Akron, and has been engaged in various departments of rubber manufacture. Incidentally, he has been the author of quite a number of rubber inventions.

On October 10 a meeting was held in New York, when it was decided to organize a company to be known as the Squires Rubber Process Company, under the laws of the State of New York, and to locate the factory at Naugatuck as soon as the necessary charter could be obtained.

The Diamond Rubber Company has added \$2,000,000 to its surplus and at present has that amount of cash on hand and no debts. The company has declared dividends of 14 per cent. for the coming year, the same rate as was paid a year ago.

The John A. Roebling's Sons Co., Trenton, New Jersey, is building 116 dwelling houses at Roebling, New Jersey, for the company's employés. These houses will occupy 12 city squares.

The Federal Rubber Manufacturing Co., Milwaukee, Wisconsin, which early in the summer acquired the properties of the old Federal Rubber Co., wishes to emphasize the change of name. All communications of every sort should be sent to the new company, as the old company has gone out of existence. Owing to the similarity of the two names a great many people fail to give the present company its proper address.

Franklin Rubber Co., Boston, Massachusetts, within the next few weeks will erect a three-story reinforced concrete addition to their present plant in Malden.

NEW INCORPORATIONS.

AUTO SECTIONAL LEATHER TIRE Co. October 19, 1911, under the laws of New York; authorized capital, \$50,000. Incorporators: Herman L. Beiner, No. 261 Broadway; Isidore Scherer, No. 261 Broadway, and Moses Scherer, No. 264 Rivington street, all of New York. Location of principal office, New York. To manufacture leather and rubber tires, etc.

Composit Hose Co., September 12, 1911, under the laws of Maine; authorized capital, \$25,000. Incorporators: Leonard Atwood, Farmington, Maine; Charles C. Sole, Boston, Massachusetts; LeRoy R. Folsom, Norridgewock, Maine. To manufacture hose, belting and weaving machinery of all kinds, etc.

Eureka Double Resilient Tire Manufacturing Co., October 4, 1911, under the laws of New Jersey; authorized capital, \$25,000. Incorporators: Gideon S. Adams, Seaville, Harry Fox, and John B. Fox, Camden, all of New Jersey. To manufacture automobile tires.

General Rubber Co. of Brazil, September 20, 1911, under the laws of New Jersey; authorized capital, \$300,000. Incorporators: James Deshler, Frank LeBar, and Henry F. Miller—all of New Brunswick, New Jersey. The company has been incorporated for the purpose of buying, selling, and dealing in crude rubber, etc.

Kabus Rubber Co., October 9, 1911, under the laws of New Jersey; authorized capital, \$50,000. Incorporators: Ferdinand Kabus, East Orange; J. Oliver Thorp, Bloomfield, and Louis Pohl, No. 239 North Eleventh street, Newark—all of New Jersey. To manufacture, purchase and sell all goods of which rubber is a component part.

Kelly-Springfield Tire Co., October 11, 1911, under the laws of New York; authorized capital, \$10,000. Incorporators: Isaac L. Rice, No. 5 Nassau street; Van H. Cartmell, No. 117 West Seventy-ninth street—both of New York, and Frederick A. Seaman, Madison, New Jersey. Location of principal office, New York. To manufacture rubber tires, etc.

Kenilworth Rubber Works, September 27, 1911, under the laws of New Jersey; authorized capital, \$60,000. Incorporators: George B. Bradshaw, Kenilworth, New Jersey; Lester F. Dittenhoefer, No. 35 Nassau street, New York; Edward W. Lawler, No. 44 East Forty-third street, Bayonne, New Jersey. To buy, sell and deal in rubber goods of every description.

Keystone Tire and Rubber Co., September 27, 1911, under the laws of New York; authorized capital, \$5,000. Incorporators: Isaac Josephson, No. 5 Beekman street; L. Walter Lissberger, No. 1780 Broadway, and Joel Jacobs, Wellington Hotel—all of New York. Location of principal office, New York City.

Mercer Rubber Co. of Pennsylvania, October 2, 1911, under the laws of Pennsylvania; authorized capital, \$5,000. Incorporators: F. L. Allen, Sewickley; Harold E. Williams, Pittsburgh, and Moorhead B. Holland, Pittsburgh—all of Pennsylvania. To buy, sell, trade and deal at wholesale in rubber materials, etc.

Mexico Latex Co. of Delaware, September 13, 1911, under the laws of Delaware; authorized capital, \$150,000. Incorporators: H. O. Coughlan, Welcome W. Bender—both of New York City, and James M. Slatterfield, Dover, Delaware. The company has been incorporated to deal in rubber, gutta percha, gum and all sorts of rubber goods.

The Moore Architectural and Engineering Co., May 5, 1910, under the laws of Ohio; authorized capital, \$50,000. Incorporators: D. F. Felmy, F. R. Moore, and Charles S. Heller. The company has been incorporated for the purpose of engaging in, conducting and prosecuting the science and practice and business of architecture, etc.

New Bedford Elastro Co., October 6, 1911, under the laws of Massachusetts; authorized capital, \$25,000. Incorporators: Otis S. Cook, Frederick H. Taber—both of New Bedford, and

Morris R. Brownell, Fairhaven—all of Massachusetts. The company has been incorporated to engage in the rubber business and that of rubber substitutes.

Photo-Type Rubber Stamp Co., September 28, 1911, under the laws of New York; authorized capital, \$10,000. Incorporators: Thos. W. McKnight, No. 277 Broadway; Alfred J. Jorman, No. 210 West Fourteenth street, and J. Frank Wickens, No. 441 Ninth street, Brooklyn—all of New York. To manufacture rubber stamps, etc. Location of principal office, New York.

Reliable Tire Repair Co., September 18, 1911, under the laws of Illinois; authorized capital, \$2,400. Incorporators: John V. Leslie, George Haas, and Bert A. Fritz. The company has been incorporated to deal in and repair automobiles and automobile supplies.

Rubber Fibre Co., September 15, 1911, under the laws of Massachusetts; authorized capital, \$25,000. Incorporators: Ralph S. Earle, Sharon, James G. McGuire, E. Milton, and Howard P. Knox, E. Milton—all of Massachusetts. The company has been incorporated for the purpose of engaging in the rubber business and that of rubber substitutes.

Russell Rubber Co., October 4, 1911, under the laws of New Jersey; authorized capital, \$50,000. Incorporators: George G. Russell, Highland Park; James W. Devine, and Agnes M. Russell, Highland Park—all of New Brunswick, New Jersey. The company has been incorporated for the purpose of engaging and carrying on the general trade or business of making, manufacturing, etc., rubber, etc.

S. & K. Tire Co., September 13, 1911, under the laws of Illinois; authorized capital, \$4,000. Incorporators: David F. Rosenthal, Edwin D. Lawlor, and Leo S. Kositchek. To manufacture and deal in tires and materials for same.

The Sea Island Tire Co., September 20, 1911, under the laws of Ohio; authorized capital, \$15,000. Incorporators: J. C. Brooks, A. L. Welch, and A. C. Miller. To manufacture, buy, sell and deal in automobile tires and tire protectors, etc.

Venezuela Trading Co., October 9, 1911, under the laws of New York; authorized capital, \$10,000. Incorporators: Antonio Parra, No. 570 West One Hundred and Sixty-first street, New York; Julio A. Pocatererra, No. 230 West Fifty-second street, New York, and Russell G. Howe, No. 3 Ninety-sixth street, Brooklyn, New York. Location of principal office, New York. To manufacture rubber goods.

TRADE NEWS NOTES.

The Federal Rubber Manufacturing Co., Milwaukee, Wisconsin, is sending out, as an advertisement for its pneumatic and solid tires, a very convenient paper weight, in the form of a horse-shoe pad made of rubber, somewhat smaller than those used in real life, lined on the bottom with a piece of green felt. It weighs about one-half pound, and makes a serviceable paper weight.

The Fairfield Rubber Co., Fairfield, Connecticut, is building an addition to its present plant.

The Mercantile Rubber Co., composed of Joseph J. Casin and Dr. S. G. Hoffman, has opened a place of business at No. 201 Second street, New York City, for the purpose of dealing in druggists' specialties and sundries.

The largest taxpayer in the city of Melrose, Massachusetts, is the Boston Rubber Shoe Co., which pays a tax amounting to \$11,135.32.

Towner & Co., Inc., Memphis, Tennessee, have recently moved into a fine new building on South Second street and Union avenue, of that city.

H. W. Barlow, of the Boston Woven Hose and Rubber Co., Boston, Massachusetts, recently delivered an address on "The Rubber Business," before the salesmen and employes of the Standard Manufacturing Co., of Pittsburgh, Pennsylvania, on the occasion of their regular fall convention.

THE OBITUARY RECORD.

JOHN H. DONY.

W. H. SALISBURY & CO., INC., Chicago, Illinois, have sent to the trade a card announcing the death, on September 19, of John F. Dony, who for 30 years had been connected with the rubber department of that company. His work consisted largely in looking after the rubber requirement of the brewery trade, among the members of which he was long known and held in high esteem.

WILLIAM R. PIERCE.

William R. Pierce, who for several months had been sales manager of the Mechanical Rubber Company, Cleveland, died October 5 of enlargement of the heart at the home of his mother in Newton, New Jersey. Mr. Pierce was formerly the Western sales manager of the Revere Rubber Company, located at San Francisco, California. A widow and one child survive him.

PERSONAL MENTION.

Houston M. Sadler, who for many years was connected with the United States Rubber Co., first as cashier and later as assistant treasurer, acting treasurer and acting general manager, was recently elected secretary of the Computing-Tabulating-Recording Co., No. 25 Broad street, New York. This company is composed of the International Time Recording Co., the Computing Scale Co. of America, the Tabulating Machine Co. and the Bundy Manufacturing Co. These companies were not competing companies, but the different articles manufactured by them supplemented one another so well that the combination was formed to effect economy of administration and to exploit the various products with a greater degree of efficiency.

M. H. Parsons, who has been assistant manager of the St. Louis branch of the Goodyear Tire and Rubber Company, has recently been appointed manager in place of C. H. Gray, who has been made district manager for the company.

John S. Goodell, a graduate of the Massachusetts Agricultural College, Amherst, recently sailed for Hawaii with the intention of starting a rubber and tobacco plantation in one of those islands. Quite a number of recent graduates from this institution are now at work in the Hawaiian Islands.

What Cheer Lodge, No. 21, A. F. and M., of Providence, Rhode Island, recently observed "Fraternity Night," at which time members of the craft for 50 years were awarded medals. Among them was ex-Governor August O. Bourn of the Bourn Rubber Co.

A recent visitor to the United States was Ernest E. Buckleton, of the Northwestern Rubber Co. Limited, Litherland, Liverpool, England. Mr. Buckleton is delightfully optimistic about the future of the rubber business here and abroad. By the time this is in type he will have returned to Europe.

W. B. Hardy, formerly of the Diamond Rubber Company, has recently sold his fine estate, Sheffingham Hall, in Norfolk, England, and has taken up his residence in Paris.

Max Loewenthal, of the United States Rubber Reclaiming Works, is in New York for a short stay after a year in Europe.

W. J. Glendenning, who has had 18 years' experience in the rubber and balata trade in England and France and who has recently been connected with Turner Bros., Limited, asbestos and belting, Rochdale, England, has come to this country to start the factory for the Manheim Manufacturing & Belting Company, Manheim, Pennsylvania, which will manufacture the Veelos brand balata belting.

H. H. Holland, who has charge of the London office of the United States Rubber Company, recently spent several weeks in this country visiting the different factories where the footwear he handles is made. He sailed from New York on the steamship *Celtic*, October 19.

E. H. Huxley, formerly assistant superintendent at the factory of the National India Rubber Company, Bristol, Rhode Island,

and who recently changed to take a similar position with the Phoenix Cap Company, New York, has removed his family from Bristol to Englewood, New Jersey.

William Hillman resigned, on October 26, the position of general manager of the Peerless Rubber Manufacturing Co.

Frank L. Byrne, who has been recently added to the staff of the New York Commercial Co., bears a name that should be of value to him in rubber circles. He is the son of the late Frank L. Byrne, who through his connection with the crude rubber business of Lawrence Johnson & Co., Philadelphia, was favorably known to the whole trade.

TRADE NEWS NOTES.

A REPORT in one of the New York dailies recently stated that the United States Tire Co. had lost \$20,000 worth of tires through the unethical activities of some of its employees. The company learned, it is said, that most of the tires disappeared between its storehouses and its retail store. Transfer slips, it is charged, were made out by certain of their employees, but the tires, instead of being taken to the retail store, were transported to another distributing agency, where they were disposed of at a reduced rate. Detectives were put on the matter, and as a result five men have been arrested, three on charges of grand larceny, one for receiving stolen goods and the fifth for being the go-between.

Excavations are now in process for the new addition to the reclaiming plant of the United States Rubber Co., Naugatuck, Connecticut. It is stated that when this addition is completed there will be employment for 100 more hands.

The Vulcanized Rubber Co., Morrisville, New Jersey, is erecting a sizeable addition to its present plant.

The Metropolitan Coal Company, of Boston, recently purchased the wharf property of the old Boston Rubber Co., located between Chelsea Ferry and the East Boston Bridge, Chelsea, Massachusetts.

The Underwriters' Laboratories have approved "Sternoid," made by the Dickinson Manufacturing Co., Springfield, Massachusetts. This is a molded composition with non-absorptive, non-combustible and insulating qualities for use in electrical fittings where mechanical strength and durability are required. K. R. Sternberg, the treasurer and general manager of the company is the inventor of this composition.

The Empire Tire Co., Trenton, New Jersey, has recently been making shipments of tires to Australia, where it has established a branch office in Sydney. This company did an effective piece of advertising during the summer by sending a big touring car equipped with a calliope attachment through the Sandwich Islands.

The mileage record for tires for the past season is claimed by E. J. Hicks, of Indianapolis, who writes to The Diamond Rubber Co., that two Diamond tires on the rear wheels of his car have been on the wheels for four years, and have run 40,000 miles. He attributes this phenomenal record to continuous perfect inflation; but if all owners of cars, by keeping their tires fully inflated, could use them for four years, and get 40,000 mile out of them, the pneumatic tire output would drop from 4,000,000 tires a year to about 400,000.

The Swinehart Tire and Rubber Co., Akron, Ohio, has been making some unusually large tires lately for one of the New York motor truck companies. The tires range as large as 38 x 6 inches, and 48 x 6 inches. Large tires have quite a number of advantages. They do not feel the inequalities of the roadway nearly as much as smaller tires; in this way reducing the jar and the vibration. And of course they have a larger wearing surface, as they revolve a lesser number of times in covering any given distance.

At a meeting of the directors of the Standard Rubber and Cable Co., Bridgeport, Connecticut, held on October 27, a 5 per cent. dividend was declared, payable November 15, 1911.

Review of the Crude Rubber Market.

THE falling off in London prices recorded for the latter part of September (closing figure being about equal to \$1.14) was followed in the first week of October by a further drop to about \$1.10. The subsequent ten days witnessed fluctuations between \$1.08 and \$1.04. During the closing week a slightly easier tone has prevailed, the quotation of October 28 equalling \$1.03 for up-river fine, spot and for early arrival. Buyers have been apparently waiting for the auctions of October 31 before operating to any extent.

While at Antwerp and Havre the prices realized at last auctions were slightly higher than valuations, the quantities disposed of have been smaller than those offered. By a comparison with the situation a few months ago, it would seem that there is a falling off in the demand from industrial points, which is being reflected in the central markets of Continental distribution. The business done would therefore seem to indicate the fulfillment of special wants, rather a provision for later requirements.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago and October 30—the current date.

PARÁ.	Nov. 1, 10.	Oct. 1, 11.	Oct. 30, '11.
Islands, fine, new.....	121@122	107@108	97@ 98
Islands, fine, old.....	none here	109@110	100@101
Upriver, fine, new.....	140@141	113@114	104@105
Upriver, fine, old.....	142@143	115@116	106@107
Islands, coarse, new.....	73@ 74	61@ 62	57@ 58
Islands, coarse, old.....	none here	none here	none here
Upriver, coarse, new.....	102@103	96@ 97	90@ 91
Upriver, coarse, old.....	none here	none here	none here
Cameta.....	75@ 76	66@ 67	59@ 60
Caucho (Peruvian) ball.....	100@101	98@ 99	89@ 90
Caucho (Peruvian) sheet.....	none here	none here	none here

PLANTATION PARÁ.

Fine smoked sheet.....	141@142	135@136	114@115
Fine pale crepe.....	140@141	133@134	115@116
Fine sheets and biscuits.....	138@139	128@129	112@113

CENTRALS.

Esmeralda, sausage.....	91@ 92	87@ 88	82@ 83
Guayaquil, strip.....	none here	none here	none here
Nicaragua, scrap.....	90@ 91	86@ 87	81@ 82
Panama.....	none here	none here	none here
Mexican, scrap.....	90@ 91	86@ 87	82@ 83
Mexican, slab.....	60@ 61	none here	none here
Mangabeira, sheet.....	75@ 76	none here	58@ 63
Guayule.....	65@ 66	46@...	45@...
Balata, sheet.....	@ 80	83@ 84	85@ 86
Balata, block.....	@ 56	58@ 59	53@ 54

AFRICAN.

Lopori ball, prime.....	124@125	111@112	98@ 99
Lopori strip, prime.....	118@119	none here	none here
Aruwimi.....	110@111	101@102	94@ 95
Upper Congo ball, red.....	110@111	110@111	90@ 91
Ikelemba.....	none here	none here	none here
Sierra Leone, 1st quality.....	119@120	95@ 96	86@ 87
Massai, red.....	119@120	96@ 97	89@ 90
Soudan Niggers.....	108@109	none here	none here
Cameroon ball.....	66@ 67	70@ 71	65@ 66
Benguela.....	88@ 89	70@...	65@ 66
Madagascar, pinky.....	none here	85@ 86	76@ 77
Accra, flake.....	46@ 47	27@ 28	28@ 29

EAST INDIAN.

Assam.....	none here	none here	none here
Pontianak.....	5½@5¼	6@...	5½@...
Borneo.....	none here	none here	none here

Late Pará cables quote:

Islands, fine.....	3\$950	Per Kilo.
Islands, coarse.....	2\$100	
Exchange.....	16 9/32d.	
Latest Manáos advices:		
Upriver, fine.....	5\$350	
Upriver, coarse.....	4\$150	
Exchange.....	16 9/32d.	

WEEKLY MOVEMENT OF LONDON PRICES.

[IN SHILLINGS AND PENCE PER POUND.]

July 7.....	4/2½	September 1.....	4/8½
July 14.....	4/5½	September 8.....	4/9
July 21.....	4/7	September 15.....	5/
July 28.....	4/8	September 22.....	4/10½
August 4.....	4/7½	September 29.....	4/8
August 11.....	4/7½	October 6.....	4/7
August 18.....	4/7½	October 13.....	4/5
August 25.....	4/10½	October 20.....	4/6½

Liverpool.

WILLIAM WRIGHT & CO. REPORT (OCTOBER 1):

Fine Pará.—We have had a fluctuating market during the month, and prices, after touching 5s. fell away to 4s. 8½d. Sellers do not seem very anxious to get on, consequently buyers are waiting. There is a report that the Brazilian government is putting a higher duty on rubber to help the banks, who have financed certain holders in Pará; if this is so and the surplus stock be sold, we must look for higher prices in the near future. The American market is steady at ½d. to 1d. above our price; the shipments from Liverpool to New York are smaller than last month. Closing value: Hard fine, 4s. 8d.; Soft fine, 4s. 6d.

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York), advises as follows: "During October the demand for commercial paper has been better than usual at this time of the year, with rates ruling at 5@5½ per cent. for the best rubber names, and 5½@6 per cent. for those not so well known."

NEW YORK PRICES FOR SEPTEMBER (NEW RUBBER.)

	1911.	1910.	1909.
Upriver, fine.....	\$1.13@1.20	\$1.55@1.90	\$1.90@2.15
Upriver, coarse.....	.94@ .99	1.22@1.42	1.12@1.32
Islands, fine.....	1.06@1.12	1.50@1.82	1.72@2.02
Islands, coarse.....	.62@ .64	.90@ .92	.63@ .82
Cameta.....	.66@ .68	.90@ .98	.83@ .96

African Rubbers.

NEW YORK STOCKS (IN TONS).

September 1, 1910.....	300	April 1, 1911.....	98
October 1.....	375	May 1.....	98
November 1.....	100	June 1.....	90
December 1.....	140	July 1.....	90
January 1, 1911.....	115	August 1.....	90
February 1.....	115	September 1.....	112
March 1.....	111	October 1.....	67

Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound—are unchanged:

	October 1.	November 1.
Old rubber boots and shoes—domestic.....	9½@ 9¼	9¼@ 9¼
Old rubber boots and shoes—foreign.....	9 @ 9¼	9 @ 9¼
Pneumatic bicycle tires.....	4½@ 4¼	4½@ 4¼
Automobile tires.....	8½@ 8½	8½@ 8½
Solid rubber wagon and carriage tires.....	9¼@ 9¼	9¼@ 9¼
White trimmed rubber.....	11 @11½	11 @11½
Heavy black rubber.....	4¾@ 5	4¾@ 5
Air brake hose.....	4½@ 4¼	4½@ 4¼
Garden hose.....	1¼@ 1¼	1¼@ 1¼
Fire and large hose.....	2 @ 2¼	2 @ 2¼
Matting.....	¾@ 1	¾@ 1

Statistics of Para Rubber (Excluding Caucho).

	NEW YORK.		Total	Total	Total
	Fine and Medium.	Coarse.	1911.	1910.	1909.
Stocks, August 31.....tons	299	71	= 370	171	156
Arrivals, September	918	422	= 1,340	930	1,157
Aggregating	1,217	493	= 1,710	1,101	1,313
Deliveries, September	946	442	= 1,388	926	1,171
Stocks, September 30.....	271	51	= 322	175	142
	PARA.		Total	Total	Total
	1911.	1910.	1911.	1910.	1909.
Stocks, August 31.....tons	3,010	585	910	1,310	295
Arrivals, September	2,515	1,870	2,020	425	1,000
Aggregating	5,525	2,455	2,930	1,735	2,275
Deliveries, September ..	2,835	1,595	2,175	880	697
Stocks, September 30.	2,690	860	755	855	1,578
World's visible supply, September 30.....tons				5,305	3,350
Para receipts July 1 to September 30.....				4,960	4,830
Para receipts of caucho, same dates.....				910	1,430
Afloat from Para to United States, Sept. 30..				978	347
Afloat from Para to Europe, September 30...				460	390

Rubber Stock at Para.

The reduction in stock continues; the figures for the present year being:

	Tons.	1911.	Tons.
January 31.....	2,085	May 31.....	5,350
February 28.....	3,787	June 30.....	4,545
March 31.....	4,214	July 31.....	3,884
April 30.....	5,104	August 31.....	3,450
September 30.....	3,102		

Of the 3,102 tons in stock on September 30, only 317 were in first hands. Out of the remaining 2,785 tons in second hands, 2,700 were held by J. Marquez, who, it has been understood, represents the Bank of Brazil.

The 2,085 tons in stock on January 31 comprised 950 tons in first hands and 1,135 tons in second hands. The actual preponderance of "second-hand" rubber will be noticed.

Para.

R. O. AHLERS & Co. report [October 11]:

As the entries have been quite regular, the market has declined slightly.

CABLED RUBBER CROP RETURNS.

COMPARATIVE rubber crop returns of 6 leading Malayan companies are cabled as follows:

	Total for financial year to September 30, 1911, pounds (dry).	Total for same period last year, pounds (dry).
Anglo Malay	536,961	470,875
Pataling	221,310	235,957
London Asiatic	221,785	114,369
Golden Hope	73,943	52,568
Selaba	132,896	50,784
Bikam	63,129	16,767
	1,250,024	941,320

ESTABLISHMENT OF RUBBER AUCTIONS AT SINGAPORE.

THE formal opening of the Singapore rubber auctions took place on September 12, the president of the Chamber of Commerce, expressing the best wishes of that body for the prosperity of the rubber trade. Out of 17,425 pounds offered, 9,500 were sold. It is intended to hold auctions every Tuesday.

Plantation Rubber from the Far East.**EXPORTS OF CEYLON GROWN RUBBER.**

[From January 1 to September 25, 1910 and 1911. Compiled by the Ceylon Chamber of Commerce.]

	1910.	1911.
To Great Britain.....pounds	1,010,849	2,098,634
To United States.....	940,177	1,270,529
To Belgium	34,217	444,151
To Japan		39,767
To Australia	3,245	27,614
To Germany	10,479	24,516
To Canada	1,911	12,067
To Italy	841	3,597
To Holland		3,448
To Austria		1,375
To France		117
To India		85
To Africa		35
Total	2,001,719	3,925,935

[Same period 1909, 869,018 pounds; same 1908, 538,432.]

TOTAL EXPORTS FROM MALAYA.

[From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.]

From—	1909.	1910.	1911.
Singapore (to Sept. 19).....pounds	1,827,350	2,499,332	4,231,692
Penang (to Aug. 31).....	1,634,805	1,437,830	3,042,612
Port Swettenham (to August 4) ..		4,706,124	6,795,266
Total	3,462,155	8,643,286	14,069,570

IMPORTS FROM PARA AT NEW YORK.

The Figures Indicate Weight in Pounds.

SEPTEMBER 28.—By the steamer *Ucayali*, from Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Poel & Arnold	136,500	27,600	75,900	300	= 240,300
New York Commercial Co.	69,900	9,400	69,500		= 148,800
A. T. Morse & Co.	39,300	5,900	14,000		= 59,200
H. A. Astlett	27,400	700	400	11,400	= 39,900
W. R. Grace & Co.			300	13,200	= 13,500
Henderson & Korn	8,600	300	4,000		= 12,900
Hagemeyer & Brunn	8,600	3,200			= 11,800
Neuss Hesslein & Co.	6,400	400	1,100	300	= 8,200
G. Amsinck & Co.			2,000		= 2,000
Total	296,700	47,500	167,200	25,200	= 536,600

OCTOBER 3.—By the steamer *Christopher*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Poel & Arnold	321,200	9,400	96,700	6,900	= 434,200
New York Commercial Co.	210,000	50,200	39,000	6,200	= 305,400
A. T. Morse & Co.	73,800	9,200	29,000		= 112,000
General Rubber Co.	90,400	7,300	5,800	1,800	= 105,300
De Lagottellerie & Co.	42,100	6,100	15,800		= 64,000
Hagemeyer & Brunn	23,600	2,100	2,000		= 27,700
Henderson & Korn	7,100		5,300		= 12,400
Total	768,200	84,300	193,600	14,900	= 1,061,000

OCTOBER 14.—By the steamer *Crispin*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Poel & Arnold	269,300	63,900	181,200	24,700	= 539,100
New York Commercial Co.	63,700	33,600	40,100	6,700	= 144,100
De Lagottellerie & Co.	91,700	6,800	40,900		= 139,400
A. T. Morse & Co.	55,000	10,700	15,200	13,500	= 94,400
General Rubber Co.	58,400	11,200	10,200		= 79,800
Hagemeyer & Brunn	27,200	300	3,300		= 30,800
Total	563,300	126,500	290,900	44,900	= 1,027,600

OCTOBER 23.—By the steamer *Clement*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
New York Commercial Co.	214,700	16,100	64,400	500	= 295,700
Poel & Arnold	148,800	42,700	45,800		= 237,300
General Rubber Co.	103,000	15,600	53,700	8,100	= 180,400
A. T. Morse & Co.	74,600	6,800	44,900		= 126,300
Hagemeyer & Brunn	16,400	700	4,600		= 21,700
Total	557,500	81,900	213,400	8,600	= 861,400

OCTOBER 23.—By the steamer *Rio de Janeiro*, from Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Poel & Arnold	144,300	21,000	68,700	4,000	= 238,000
Henderson & Korn	31,600	1,400	10,600		= 43,600
New York Commercial Co.	20,800	5,800	3,300		= 30,300
De Lagottellerie & Co.	13,900	1,800	2,000		= 17,700
Total	210,600	30,000	84,600	4,700	= 329,900

PARA RUBBER VIA EUROPE.

POUNDS.	
SEPTEMBER 29.—By the <i>Adriatic</i> =Liverpool:	
New York Commercial Co. (Fine)	11,500
General Rubber Co. (Coarse)	11,500
A. W. Brunn (Fine)	3,500
Poel & Arnold (Fine)	85,000
Poel & Arnold (Caucho)	70,000 181,500
OCTOBER 2.—By the <i>President Grant</i> =Hamburg:	
New York Commercial Co. (Fine)	15,000
Poel & Arnold (Fine)	22,500
Wallace L. Gough Co. (Fine)	2,500 40,000
OCTOBER 4.—By the <i>Saramaca</i> =Bolivia:	
General Exp. Comm. Co. (Fine)	28,000
General Exp. Comm. Co. (Coarse)	16,000 44,000
OCTOBER 5.—By the <i>Columbia</i> =Liverpool:	
James T. Johnstone (Coarse)	13,500
OCTOBER 9.—By the <i>Amerika</i> =Hamburg:	
A. T. Morse & Co. (Fine)	13,500
New York Commercial Co. (Coarse)	11,500 25,000
OCTOBER 9.—By the <i>Minnehaha</i> =London:	
Poel & Arnold (Coarse)	45,000
OCTOBER 10.—By the <i>Saxonia</i> =Liverpool:	
Poel & Arnold (Fine)	240,000
General Rubber Co. (Fine)	215,000
New York Commercial Co. (Fine)	13,500
Raw Products Co. (Coarse)	25,000
Robinson & Co. (Coarse)	9,000
Poel & Arnold (Caucho)	56,000 558,500
OCTOBER 13.—By the <i>Baltic</i> =Liverpool:	
New York Commercial Co. (Fine)	11,500
OCTOBER 13.—By the <i>Pennsylvania</i> =Hamburg:	
Rubber Trading Co. (Fine)	11,000
OCTOBER 19.—By the <i>Patricia</i> =Hamburg:	
New York Commercial Co. (Fine)	22,500
A. T. Morse & Co. (Fine)	6,000 28,500
OCTOBER 21.—By the <i>Celtic</i> =Liverpool:	
Muller Schall & Co. (Coarse)	13,500
OCTOBER 21.—By the <i>Irishman</i> =Liverpool:	
General Rubber Co. (Fine)	230,000
Raw Products Co. (Coarse)	9,000
Muller Schall & Co. (Caucho)	22,500
General Rubber Co. (Coarse)	22,500 284,000
OCTOBER 21.—By the <i>Campania</i> =Liverpool:	
New York Commercial Co. (Fine)	13,500
Rubber Trading Co. (Coarse)	11,500
Raw Products Co. (Coarse)	13,500
General Rubber Co. (Coarse)	9,000
Henry A. Gould Co. (Fine)	5,500 53,000
OCTOBER 23.—By the <i>Cincinnati</i> =Hamburg:	
A. T. Morse & Co. (Caucho)	11,000

OTHER NEW YORK ARRIVALS.

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

SEPTEMBER 26.—By the <i>Prinz Sigismund</i> =Colon:	
G. Amsinck & Co.	18,000
A. M. Capen's Sons	5,500
Otto Gerdan	4,500
Andean Trading Co.	3,500
R. Castillo & Co.	2,500
Caballero & Blanco	1,500
A. Brigado & Co.	1,500
Roldau & Van Sickle	1,000 38,300
SEPTEMBER 26.—By the <i>El Cid</i> =Galveston:	
Continental-Mexican Rubber Co. *	200,000
Charles T. Wilson	22,500 *222,500
SEPTEMBER 29.—By the <i>Morro Castle</i> =Mexico:	
Lawrence Import Co.	2,500
A. Klipstein & Co.	1,500
George A. Alden & Co.	1,000
J. W. Wilson & Co.	1,000 6,000
SEPTEMBER 29.—By the <i>El Sud</i> =New Orleans:	
Manhattan Rubber Manufacturing Co.	7,000
A. N. Rotholz	2,500
K. Mandell & Co.	1,500 11,000
SEPTEMBER 30.—By the <i>Santiago</i> =Tampico:	
New York Commercial Co.	*345,000
Poel & Arnold	*22,500
For Europe	*75,000 *442,500
OCTOBER 2.—By the <i>Adriatic</i> =Liverpool:	
James T. Johnstone	11,000
In Transit	15,000 26,000

POUNDS.	
OCTOBER 2.—By the <i>Advance</i> =Colon:	
G. Amsinck & Co.	8,500
New York Commercial Co.	5,500
Dumarest Bros. & Co.	4,500
H. Fellman & Co.	4,500
A. T. Morse & Co.	3,500
Langman & Kemp	3,500
Schutte Bunemann & Co.	2,500
Jose Julia & Co.	2,000
Pablo Calvert & Co.	2,000
Mecke & Co.	1,000
George A. Alden & Co.	1,000
Wessels Kulenkampf & Co.	1,000 39,500
OCTOBER 3.—By the <i>Allemania</i> =Colombia:	
Suzarte & Whitney	4,500
A. Jaramillo & Co.	3,500
A. Helde	2,000
G. Amsinck & Co.	1,000 11,000
OCTOBER 4.—By the <i>El Sol</i> =Galveston:	
Continental-Mexican Rubber Co. *	45,000
OCTOBER 4.—By the <i>Prinz Joachim</i> =Colon:	
G. Amsinck & Co.	5,500
Mecke & Co.	3,000
Piza, Nephews & Co.	1,500
J. Sambrada & Co.	1,000
United Fruit Co.	1,000
Roldau & Van Sickle	1,000
Wessels Kulenkampf & Co.	1,000
Brandon & Bros.	1,000 15,000
OCTOBER 5.—By the <i>Proteus</i> =New Orleans:	
Manhattan Rubber Mfg. Co.	5,500
G. Amsinck & Co.	2,500
Eggers & Heinlein	1,500 9,500
OCTOBER 6.—By the <i>Matanzas</i> =Tampico:	
Ed Maurer	*90,000
For Europe	*35,000 *125,000
OCTOBER 6.—By the <i>Monterey</i> =Frontera:	
Harburger & Stack	3,500
H. Marquardt & Co.	2,500
E. Steiger & Co.	2,000
General Exp. Comm. Co.	1,500
George A. Alden & Co.	1,000 10,500
OCTOBER 7.—By the <i>El Valle</i> =Galveston:	
Continental-Mexican Rubber Co. *	125,000
In Transit	*11,000 *136,000
OCTOBER 9.—By the <i>Prinz Eitel Friedrich</i> =Colon:	
G. Amsinck & Co.	140,000
Otto Gerdan	9,000
New York Commercial Co.	4,500
Scholz & Marturet	3,500 157,000
OCTOBER 10.—By the <i>Asiatic</i> =Bahia:	
J. H. Rossbach & Bros.	40,000
Adolph Hirsch & Co.	40,000 80,000
OCTOBER 10.—By the <i>El Mundo</i> =Galveston:	
Continental-Mexican Rubber Co. *	80,000
OCTOBER 10.—By the <i>Antilles</i> =New Orleans:	
G. Amsinck & Co.	3,500
George A. Alden & Co.	2,500
Eggers & Heinlein	2,500 8,500
OCTOBER 10.—By the <i>Saxonia</i> =Liverpool:	
George A. Alden & Co.	11,000
Poel & Arnold	11,500 22,500
OCTOBER 11.—By the <i>Atrato</i> =Colon:	
A. M. Capen's Sons	7,000
Isaac Brandon & Bros.	2,000
J. Sambrada & Co.	2,000
G. Amsinck & Co.	1,000
Kunhardt & Co.	1,000 13,000
OCTOBER 13.—By the <i>Titian</i> =Colon:	
J. H. Rossbach & Bros.	45,000
OCTOBER 13.—By the <i>El Cid</i> =Galveston:	
Continental-Mexican Rubber Co. *	85,000
In Transit	*11,000 *96,000
OCTOBER 13.—By the <i>Mexico</i> =Frontera:	
Herman Klugg	7,000
H. Marquardt & Co.	5,000
E. Steiger & Co.	4,500
Harburger & Stack	4,000
E. E. Tibbals & Co.	1,500 22,000
OCTOBER 16.—By the <i>El Oriente</i> =Galveston:	
Continental-Mexican Rubber Co. *	90,000
OCTOBER 16.—By the <i>Albion</i> =Colombia:	
Maitland, Coppell & Co.	9,000
Mecke & Co.	2,500
R. Castillo & Co.	1,000
A. Held	1,000
Caballero & Blanco	1,000 14,500
OCTOBER 16.—By the <i>Camaguey</i> =Tampico:	
New York Commercial Co.	*45,000
Ed. Maurer	*35,000
For Europe	*110,000 *190,000

POUNDS.	
OCTOBER 18.—By the <i>Panama</i> =Colon:	
Isaac Brandon & Bros.	21,000
G. Amsinck & Co.	20,000
Pablo Calvert & Co.	3,500
Dumarest Bros. & Co.	2,500
Andean Trading Co.	2,500
Laurence Johnson & Co.	2,000
W. Loiza & Co. of N. Y.	1,500
Jose Julia & Co.	2,000
Mecke & Co.	1,500
Gillespie Bros. & Co.	1,000
J. Sambrada & Co.	1,000
Suzarte & Whitney	1,000 59,500
OCTOBER 19.—By the <i>Momus</i> =New Orleans:	
T. W. Morgan	3,000
K. Mandell & Co.	2,500
Wessels Kulenkampf & Co.	1,500 7,000
OCTOBER 20.—By the <i>El Sud</i> =Galveston:	
Continental-Mexican Rubber Co. *	175,000
OCTOBER 21.—By the <i>Esperanza</i> =Frontera:	
Harburger & Stack	7,000
Maitland, Coppell & Co.	5,000
In Transit	2,000 14,000
OCTOBER 23.—By the <i>Prinz Sigismund</i> =Colon:	
Isaac Brandon & Bros.	26,000
G. Amsinck & Co.	17,000
Andean Trading Co.	3,000
New York Commercial Co.	2,500
Laurence Johnson & Co.	4,000
J. Sambrada & Co.	3,500 56,000
OCTOBER 23.—By the <i>El Sol</i> =Galveston:	
Continental-Mexican Rubber Co. *	50,000
OCTOBER 23.—By the <i>Byron</i> =Baltic:	
J. H. Rossbach & Bros.	11,500
OCTOBER 24.—By the <i>Thames</i> =Colon:	
A. M. Capen's Sons	6,000
Mecke & Co.	3,500
G. Amsinck & Co.	1,500 11,000
OCTOBER 25.—By the <i>Antilla</i> =Tampico:	
New York Commercial Co.	*90,000
For Europe	*75,000 *165,000
AFRICAN.	
SEPTEMBER 26.—By the <i>Vaderland</i> =Antwerp:	
A. T. Morse & Co.	33,500
Henderson & Korn	20,000
Poel & Arnold	20,000
Muller, Schall & Co.	13,500
Raw Products Co.	2,000 89,000
SEPTEMBER 29.—By the <i>Adriatic</i> =Liverpool:	
George A. Alden & Co.	65,000
Poel & Arnold	34,000
James T. Johnstone	4,500 103,500
OCTOBER 2.—By the <i>Lapland</i> =Antwerp:	
Wallace L. Gough Co.	13,500
A. T. Morse & Co.	7,000 20,500
OCTOBER 2.—By the <i>President Grant</i> =Hamburg:	
A. T. Morse & Co.	125,000
George A. Alden & Co.	25,000
Wallace L. Gough Co.	34,000
Poel & Arnold	22,500
Muller, Schall & Co.	20,000
Robert Badenhop	9,000
Rubber Trading Co.	3,500 239,000
OCTOBER 5.—By the <i>Columbian</i> =Liverpool:	
James T. Johnstone	9,000
OCTOBER 6.—By the <i>St. Laurent</i> =Bordeaux:	
George A. Alden & Co.	22,500
Rubber Trading Co.	11,500
Poel & Arnold	7,000 41,000
OCTOBER 7.—By the <i>Cedric</i> =Liverpool:	
Poel & Arnold	45,000
Wallace L. Gough Co.	5,000
Ed Maurer	4,500 54,500
OCTOBER 9.—By the <i>Amerika</i> =Hamburg:	
George A. Alden & Co.	75,000
A. T. Morse & Co.	55,000
Poel & Arnold	28,000
Wallace L. Gough Co.	8,000 166,000
OCTOBER 9.—By the <i>New York</i> =London:	
General Rubber Co.	15,000
Robert Badenhop	13,000
Rubber Trading Co.	11,000
George A. Alden & Co.	5,000
Muller, Schall & Co.	4,500 48,500
OCTOBER 10.—By the <i>Chicago</i> =Havre:	
A. T. Morse & Co.	210,000
Ed Maurer	5,500
Raw Products Co.	3,500 219,000
OCTOBER 10.—By the <i>Saxonia</i> =Liverpool:	
General Rubber Co.	22,500
Poel & Arnold	15,000
George A. Alden & Co.	15,000

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No. 17. Particularly adapted to softening material for tubing machine. Almost universally used for waterproofing wire.

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NEW YORK

OCTOBER 2.—By the *Lapland*—Antwerp:
A. T. Morse & Co..... *20,000

L. Littlejohn & Co.	*11,500	
Otto Isenstein Co.	*11,500	
Wallace L. Gough Co.	*7,000	
Haebler & Co.	*50,000	
Ed Maurer	9,000	
Otto Isenstein Co.	4,500	143,500

OCTOBER 20.—By the <i>Guiana</i> —Demerara:	
Middleton & Co.	7,000

SEPTEMBER 13.—By the *Franconia*=Liverpool:
Poel & Arnold (Jelutong)..... 22,500

NEW YORK.						EUROPE.						
EXPORTERS.		Fine.	Medium.	Coarse.	Caucho.	TOTAL.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	TOTAL.
Gruner & Co.	79,893	46,632	175,805	38,503	340,833	202,446	15,640	39,500	90,683	348,269	689,102	
Ad. H. Alden, Ltd.	42,682	11,302	69,827	47,190	171,001	75,650	12,410	66,628	13,789	168,477	339,478	
Gordon & Co.	48,421	3,219	37,877		89,517	24,630	5,000	4,333	12,691	46,654	136,171	
Suarez Hermanos & Co., Ltd.						34,633		6,138	24,595	65,366	65,366	
Pires, Teixeira & Co.	9,860	340	9,240		19,440	18,700		8,250		26,950	46,390	
De Lagotellerie & Co.	17,680	3,740	19,800		41,220						41,220	
R. O. Ahlers & Co.	7,786		6,773	17,237	31,796	1,578		130		1,708		
A. de la Rivière & Co.	18,530		9,900		28,940						28,940	
Sundries	2,087	5,350	2,111	327	9,875			2,310		2,310	12,185	
Mankos, direct	192,105	39,200	45,664	12,266	289,235	223,512	32,396	32,824	87,884	376,616	665,851	
Iquitos, direct						57,200	179	1,940	92,581	151,900	151,900	
Total, August, 1911.....	419,044	110,293	376,797	115,523	1,021,857	638,349	66,625	162,053	322,223	1,188,250	2,210,107	
Total, July, 1911.....	294,212	62,865	347,130	214,267	918,474	599,843	96,127	103,983	335,317	1,135,270	2,053,744	



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Antwerp.

RUBBER STATISTICS FOR SEPTEMBER.

DETAILS.	1911.	1910.	1909.	1908.	1907.
Stocks, August 31..... kilos	522,401	536,560	244,851	874,514	740,514
Arrivals in September.....	306,413	271,042	408,469	189,424	562,889
Congo sorts.....	209,265	211,578	334,265	142,743	490,090
Other sorts.....	97,148	59,464	74,204	46,681	72,799
Aggregating.....	828,814	807,602	653,320	1,063,938	1,303,403
Sales in September.....	393,269	226,694	255,866	409,777	584,398
Stocks, September 30.....	435,545	580,908	397,454	654,161	719,005
Arrivals since January 1.....	3,186,627	3,029,395	3,571,153	3,663,163	4,064,354
Congo sorts.....	2,350,081	2,350,698	2,659,293	3,095,954	3,476,334
Other sorts.....	836,546	678,697	911,860	567,209	588,020
Sales since January 1.....	3,339,394	2,989,997	3,769,434	4,015,896	4,003,533

ENGLISH LECTURES ON RUBBER.

A COURSE of lectures on rubber technology will be delivered by Mr. Frederick Kaye (a well-known scientist in that branch), during the coming winter, at the Northern Polytechnic Institute, Holloway, London. This step will mark the establishment of the first practical rubber school in England.

Urging (quite independently), the lack of general knowledge about rubber, a correspondent under the *nom-de-plume* of "Caoutchouc" in writing the "Edinburgh Evening News," says among other pertinent things: "If the directors of the School Board knew the history of their waterproof coat, their motor tire, their rubber sponge, their hot-water bottle, their golf ball, and perhaps their false teeth, or if they knew how many thousands of pounds had to be expended on machinery before . . . such articles could be produced, they might consider whether it were not worth while to try and promote a better and sounder knowledge of a trade, which is increasing in importance every day, and, judging by what has already been done, is likely to have a big future."

EUROPEAN PRICE-CUTTING IN PNEUMATIC TIRES

THE recent price-cutting in pneumatic tires by leading French manufacturers and the consequent injury to the German tire industry has been the subject of disapproval in the German press. Appeals have likewise been made to the patriotism and expert knowledge of German buyers, but have proved ineffectual. That this form of special pleading is repugnant to genuine commercial principles is urged by the "Gummi-Zeitung" in the following words: "It is doubtful whether such an attempt would not have done incalculable harm, not to be again made good. It is to be noticed that Michels have not only made this reduction for Germany, but for all countries. The contest has therefore broken out along the whole line, and it seems to be the tactics of the firm to forcibly grasp the business at all points. . . . That the pneumatic tire industry cannot permanently work at today's prices, is self evident; the only question being, how many hundred thousand (marks) must first be lost, before this policy is reversed."

Continuing its remarks, the journal in question urges the united action of the German tire manufacturers, by means of an association which would have perhaps counteracted the ruinous policy of the French firm, without following similar tactics. The opinion is likewise expressed, that crude rubber is going up and that there is no reason, except sheer competition, for reducing prices. One advantage which may be looked for, it is added, is the clearing of old stocks at the reduced rates, thus drawing good from evil.

The Hannoversche Gummi-Kamm Company (one of the principal German concerns in that line), has issued a reassuring statement to its shareholders, urging that no cause exists in any way for alarm with respect to the tire market. It is understood that the Continental Caoutchouc and Gutta Percha Company is following the policy of the French manufacturers as to competition.

